THE TIMES
Higher Education
SUPPLEMENT

Teacher regret greets closure decisions

by David Hencke

The Government's decision to close 13 colleges of education and to retain only 11 centres with more than 1,000 teacher training places was greeted with regret by teacher organizations and colleges this week.

Alone among the teacher unions, the Association of Teachers in Colleges and Departments of Education, while describing the situation as tragic, pointed out that to retain many colleges with only 300 to 400 teacher places might not be the most efficient answer to the problem.

In a delicately worded statement, Mr Ken Baird, acting general secretary of the ATCDE, said: "Clearly, the matter is tragic from the point of view of our members. Some people will gain security others insecurity from the statement regardless of the work they have put in at their own institutions.

"Obviously we are not happy about the situation, but we appreciate the nature of the problem. It will be silly to train people for unemployment."

He added: "The Government has understandably yielded to political pressure to keep as many colleges open as they can. The nub of the problem is however whether the remaining colleges of higher education will be of sufficient size to be efficient."

Mr Don Thomas, a spokesman for the Hereford College of Education campaign, said that the closure of the college would still be resisted by staff.

"The future of the college is to be tied up with the future of the county and will become part of a campaign to be launched this autumn by the Herefordshire Survival Campaign.

"It is deplorable what is happening to the country's education system particularly in the rural areas which are returning to the status of provinces in the most pejorative sense of the word.

"The closure of colleges of education in places like Hereford and adult education centres like Attingham Park, near Shrewsbury, has a profound effect on the cultural life of the community."

Mr Alan Evans, head of the education department of the National Union of Teachers, said that the colleges were the victims of swingeing overall cuts in education spending.

"What is more serious is that the criteria for judging which colleges should be kept open and which closed has never been a matter for public debate", he said.

● At least two authorities look like shielding polytechnics and colleges of education from serious cuts in education spending.

Lancashire education authority, which is faced with cutting back expenditure in schools, is likely to continue expanding Preston Polytechnic and its colleges at Poulton-le-Fylde and Chorley, which were merged with the polytechnic this year.

East Sussex education authority is also reluctant to cut spending on the new Eastbourne College of Higher Education and on the merger of Brighton College of Education and Brighton Polytechnic.

Investigate SSRC says professor

by David Walker

The Social Science Research Council should be investigated by the Public Accounts Committee, a sociology professor will tell a meeting of the British Association in Guildford today.

Professor M P. Carter, head of the sociology department at Aberdeen University, will speak at a symposium on the work of the research councils, which will be attended by Professor Robin Matthews, the retiring chairman, about moves by permanent officers of the SSRC which may have put at risk a major social research project and wasted public money.

Professor Carter, this week told *The THES* that as a social scientist he took no pleasure in adding to the criticism, some of which came from uninformed laymen. But if criticism was justified he said his "grave concern" had to be voiced.

● Sociologists at Aberdeen University this week strongly criticized the SSRC for what they called unwarranted interference in a contract between a research team and a firm of market researchers.

Mr Geoffrey Payne of the sociology department said a major £66,000 study of social and occupational mobility in Scotland had been jeopardized by a sequence of events during the past two years in which the SSRC had shown little knowledge of Scottish conditions and had intervened in a domestic matter.

A spokeswoman for the SSRC said the council had no comment to make on the allegations since it had already been told that the affairs of the department and the commercial firm were none of its business.

Mr Payne said that issues had been raised that were wider than the relationship between researchers and a particular firm they employed. Some of the staff of the SSRC were "biased". The SSRC expected people from Aberdeen to come to meetings in London with as much ease as if they were coming from Esher, he added.

Graduates demand tough line on campus vandals

by Sue Reid

As Essex University struggles to improve its financial position, an organization which represents 3,500 of the university's graduates has called for a tougher line against students who take part in costly campus vandalism.

Essex Graduate, the magazine of the university convention, said last week that violence, vandalism and idleness were forms of behaviour that could no longer be subsidized from public funds. They were "luxuries" the Essex campus could do without.

It added that staff at Essex, which faces a deficit of £300,000 this year, should try to persuade the public of the continuing value of universities as national assets.

The strongly worded editorial is likely to provoke a strong reaction from the Essex students. Mr Colin Bearden, the student president, has already intimated that he plans to contact the convocation about the article and defend the student position.

But Mr Michael Chapman, chairman of the convocation, said this week that his organization took the view that in a situation of acknowledged deficit the university could not afford to have vandalism.

He claimed that the figures involved were not small. Damage caused during a sit-in by students could cost the university between £1,000 and £1,500 he alleged.

Mr Chapman said he felt students should recognize the cost of vandalism and pull together to rid the campus of it. The convocation was strongly opposed to wanton damage, he added, and had already sent a resolution to the university deploring the damage of files during a student occupation of its offices a year ago.

If there was a further outbreak of campus vandalism in the future he expected the convocation to lobby the university and try to stop it. Students should not change the rules to suit themselves but abide by them.

Mr Chapman went on to reject any suggestion of the widely publicized student unrest at Essex jeopardizing graduate job prospects. "Much of the university's reputation rests on research and I really don't think the Essex graduate unemployment figures bear out any theory of wariness on the part of employers."

Dr Albert Sloman, vice-chancellor of the university, writing in *Essex Graduate* about the deficit says that economies have already been made on fuel, power, light and stationery. He adds that while more cuts are planned in this area a large saving will only be achieved by non-replacement of staff.

"Because it is the university's policy to avoid at all costs staff redundancies, it will have to leave unfilled many of the posts that become vacant when staff resign or retire or when their contracts terminate", he said.

In Parliament

Hall places will top 7,000

More than 3,800 grant-aided residential places are now under construction at universities in Great Britain and will be available for use this autumn, Lord Crowther-Hunt, Minister of State for Higher Education, announced in the House of Lords recently. He also said that a further 3,435 residential places were due for completion by October 1976.

Lord Crowther-Hunt added that plans for the completion of living units in 1977 were at present subject to too many uncertainties for reliable figures to be given.

Of the residential places to be completed this year in the United Kingdom more than 3,000 will be at English universities, 260 in Wales and 560 in Scotland.

● Mr Fred Mulley, Secretary of State for Education, told the House of Commons recently that polytechnics should maintain close relations with industry and commerce, especially those sections which needed specialized skills and knowledge. He was answering a question on the possibility of polytechnics in the north of England setting up a single centre to deal with education and training for off-shore development, such as oil production.

● The Department of Education and Science has cut its staff numbers in non-industrial fields by nearly 500 in the last five years, Mr Mulley announced in the House. But the staff complement of the University Grants Committee, again on the non-industrial side, has risen by two during the same time.

The DES employed 3,234 staff in 1971 but by 1974 this figure had fallen to under 3,000 and this year it stands at 2,847. The University Grants Committee staff total has risen from 118 in 1971 to 120 this year.

● Mr Mulley, speaking in the House, underlined his determination to end the isolation of teacher training from other kinds of further and higher education. Answering a question on the desirability of teacher training in monotechnics, he said that it was one of the express purposes of the reorganization of higher education to end this isolation, although he admitted there would still be a place for a limited number of institutions devoted solely to teacher education.

The House was also told that in March this year, the latest date for which figures are available, 1,585 school teachers were unemployed compared to 1,466 in March, 1974.

● Mr Mulley, in a written answer, has announced that there are 3000 surplus places in scientific and technologically based disciplines. He said this was because the planned increase in science and technology expected.

Moser promises 'open door' policy on statistics

A senior civil servant this week pledged academics full access to data collected by the Government Statistical Service and the closest possible cooperation in applying new techniques to problems.

Sir Claus Moser, head of the Government Statistical Service and former professor at the London School of Economics, told the annual conference of the American Statistical Association of the many responsibilities of government statisticians to a number of publics, including academics.

He said that these responsibilities "are of course our contribution to efficient government (central and regional) through the provision of a timely and accurate data base, and through the fullest possible exploitation of our skills.

"I reject the old-fashioned concept of the statistician as a purveyor of pure facts and quite disconnected from the activities of the users."

He said that these responsibilities called for a new outward looking statistician. The universities had now to turn out a particular kind of person: interested in statistics not only for their own sake but for what they could contribute to society.

60 per cent top school leavers take further study

The number of school leavers in England and Wales rose by 36,000 to 681,500 between 1972 and 1974, according to provisional figures issued by the Department of Education and Science this week.

Of 105,000 who left with A-level passes in 1974 83,000 passed two or more subjects. Nearly 60 per cent of the more highly qualified school leavers entered full-time higher education in universities, colleges and polytechnics.

Roughly equal numbers of boys and girls (32,000 to 29,000) entered degree courses. Girls still dominated entry to teacher training courses by four to one, in spite of a decline in interest in such training.

Girls also gained far fewer science passes at A level. One result was that girls without science at A level represented half the total intake into teacher training courses.

The figures show a high correlation between subject specialization at A level and the degree course entered, with those passing a mixture of science and arts subjects dividing equally between the two disciplines.

Former Olympic runner gets Glasgow post

The former Olympic sprinter Mr Peter Radford has been appointed director of physical education at Glasgow University. He succeeds Mr Graham Nixon who retires this year. Mr Radford won a bronze medal for the 100 metres in the 1960 Rome Olympics.

ILEA planner appointed

Mr James McDougall, principal lecturer in geology at the City of London Polytechnic, has been appointed the Inner London Education Authority's assistant education officer for further and higher education. He will have special responsibility for

CNAA guide revised

All 900 degree, diploma and certificate courses validated by the Council for National Academic Awards and offered at some 100 polytechnics and colleges are listed in the CNAA's new *Directory of First Degree Courses, 1975*.

The directory, which replaces the CNAA's previous publication, the *Compendium of Degree Courses*, is a preliminary guide for use by applicants seeking information on CNAA undergraduate courses outside universities.

It includes lists of all the courses and institutions by subjects with a brief description of what each course involves. *Directory of First Degree Courses, 1975*, from the Council for

V-cs reject idea of Scottish UGC

The Scottish vice-chancellors this week rejected unconfirmed reports that the Government's devolution White Paper would advocate setting up a Scottish University Grants Committee.

At a meeting between the vice-chancellors and Mr Mulley, the Education Secretary, to be held in September, they will repeat their support for a United Kingdom-wide UGC system.

One vice-chancellor told *The THES*: "We look with extreme disfavour on the idea of a Scottish UGC. The university system is complicated enough already without another mechanism. With another level to add to assembly, Scottish Office civil servants, Department of Education, UK UGC, the thing could become a bit of a nightmare."

A report in *The Scotsman* last October said the White Paper would preclude any control of the Scottish universities by the Scottish Assembly. A Scottish UGC would receive a block grant from the Treasury.

TUC wants Government to boost union education

The Trades Union Congress is appealing for increased Government financial aid of several hundred thousand pounds for an expansion of trade union education.

In a long memorandum to Mr Mulley, Secretary of State for Education, the TUC says the present scale of education for trade unionists is "totally inadequate". It claims that while public expenditure on management training was between £12m and £15m in 1973 the

Computer renewals

From page 1

available to universities and research councils. Central processing and file handling capabilities are not the only criteria for judging the value of using computers," it says.

"The board also says that it is looking into the possibility of making computing facilities more widely available by the use of networks.

"There may also be an opportunity to increase the benefit to be derived from these facilities by sharing computing resources with other institutions of research and higher education", it says.

Computer Board for Universities and Research Councils: *Report of the Computer Board for the period*

NEXT WEEK

Professor W. H. G. Armytage on a new history of universities

Peter Scott on post-secondary education in the United States

The repression of South African students

Careers advisory services

John Habakkuk's speech to the IAU conference in Moscow

Make sure of your copy of The Times Higher Education Supplement by placing a regular order with your newsagent.

© TIMES NEWSPAPERS LIMITED 1975
Printed and Published by Times Newspapers Limited of New Printing House Square, Gray's Inn Road, London WC1X 8EZ.

THE TIMES
Higher Education
SUPPLEMENT
September 5, 1975. No. 202 Price 12p

Universities defend 'elitism' in reply to Crowther-Hunt

by David Walker

Universities this week replied to recent statements by Lord Crowther-Hunt, Minister for Higher Education, that they should be more responsive to the needs of society with an unabashed statement of faith in elite higher education.

Sir Roy Marshall, secretary-general of the Committee of Vice-Chancellors and Principals, called the Government's attention to the versatility of the universities, while at the same time emphasizing as a national priority that the universities remain the apex of the higher education system.

At an international conference on "excellence or equality" at Lancaster University speaker after speaker took up the themes in a recent address by Mr John Habakkuk, vice-chancellor of Oxford University, in Moscow. They declared that the university as a centre of excellence could coexist within a system that allowed wider access to higher education.

But in reply to Lord Crowther-Hunt, Sir Roy Marshall and Mr Charles Carter, vice-chancellor of Lancaster University, spelt out that some changes in the universities were necessary.

Mr Carter spoke of moves towards shorter one and two-year courses. Sir Roy highlighted the large-scale contribution made by the universities to adult education.

Professor Martin Trow and Professor Edward Shils, the well-known American sociologists, with many years' experience of British conditions, were optimistic that the transition to mass higher education would not swamp the universities. Centres of scholarship and high quality research or cadres of high calibre academics could remain as a "leavening" of the mass system.

These speeches echoed that of Sir Alex Smith, chairman of the Committee of Directors of Polytechnics, in Australia recently, when he said that he was proud of the binary system and the distinctiveness of the further education sector.

The main elements of the emerging universities' counter-attack were:

● The preservation of centres of excellence is not incompatible with mass higher education. Professor Shils argued that to prevent mass higher education sinking into an uninspired assembly of clichés, concern for high standards had to be diffused throughout the system. This could be the universities' job.

● The work the universities do is essential. Sir Roy Marshall said the universities should emphasize the quality and quantity of their work in teaching, research and scholarship.

● The qualification provided by universities is essential. Professor Gareth Williams, one of the organizers of the Lancaster conference, warned of the dangers of abandoning tried and trusted university degrees. Students from poor homes had set a degree as their target, and to switch from a degree to some more vague and diffuse qualification would rob them of security.

● Standards matter. Professor Martin Trow attacked those academics and vice-chancellors hostile to the very spirit of the elite institutions to which they belonged.

Sir Roy Marshall rejected the proposed "open access" of comprehensive colleges and spoke of a plurality of institutions led by the universities through their high intellectual standards.

"If success based on intellectual achievement is a form of elitism, then the universities have nothing to be ashamed of if they are élite in this sense", he said.

Leader, page 12

No to the multiversity, Marshall says

by Brian MacArthur

The development of British higher education on the United States model was advocated this week by Sir Roy Marshall, secretary general of the Committee of Vice-Chancellors and Principals.

Speaking at Lancaster, he said: "As far as Britain is concerned, it would be difficult — without an injection of resources so massive as to be unthinkable in present circumstances — to bring together the polytechnics and the universities. Only about half the polytechnics are near to universities. Would the other half be closed, or would two-thirds of the universities be closed in order to effect the amalgamation?

"Or, as an alternative, would all institutions not geographically convenient for amalgamation be asked to extend their range of courses? Either course would be enormously expensive, and I am not convinced that the result would be satisfactory."

American experience suggested that vast institutions tended to break into semi-autonomous units, a development which ran counter to their purpose. Their very size carried with it the threat of impersonality, over-dependence on permanent administrators, and an increase in the influence of pressure groups.

Above all, perhaps, there was the threat of the dilution of the university achievement. Sir Roy said that he favoured a different approach based upon the existing British situation and the encouragement given recently by Lord Crowther-Hunt, Minister for Higher Education, to more cooperation between universities and polytechnics.

This approach might be developed in the future on the lines of some of the American models. At present between 14 and 15 per cent of the appropriate age group entered higher education, but we might perhaps look forward in the long term to a time when this figure would be 25 per cent.

Not all would take degree courses, nor need massive comprehensive in-



Sir Roy Marshall

stitutions be created even if this were economically possible. Instead Britain should continue to have a variety of institutions offering opportunities for different talents and abilities.

There might be a place for community colleges and liberal arts colleges as well as for polytechnics and university. But nations neglected excellence and talent at their peril, and within the overall pattern universities should remain the apex of the system.

The experiences of countries such as France, Germany or the United States, which had a rather more open system of higher education than Britain, showed that there was a vital role for the prestige institutions catering for those who were the most able intellectually.

Earlier, Sir Roy discussed three of the questions posed for universities by the changing values of British society:

● Did society prize universities less highly than before, or did it attach less significance to scholarship, or was there a view abroad that standards were being lowered? "State would contend that the new values of society are reflected in the financial rewards now offered in academic life which are less attractive than they were compared with the Civil Service and the public corporations. If this is true then there is of course a threat to the quality of staff."

● Was there sufficient incentive for the student? "I was forcibly struck by the contrasts between the announcement that the full student grant was to be increased from £605 to £740 a year next year and a pay claim submitted shortly afterwards, one element of which was that a secretary of 18 should receive more than £2,000 a year".

● Were the universities themselves altogether blameless? Had they recognized the inadequate motivation or the sense of disaffection among some students and taken steps to improve their selection and progress procedures? Stressing the serious implications of inflation, Sir Roy said that immense problems had been caused by the unprecedentedly severe financial constraints on universities—and there was worse to come.

"If the present problems continue unabated for a long period they will cause permanent damage to the university system by undermining the quality of the education provided."

Perhaps the biggest threat to excellence, however, was the decline in confidence and the loss of morale among those working in universities, since the period of economic difficulty had come after a period of expansion during which higher expectations were created.

"A situation thus arises in which the more successful a university is in attracting grants because of the size and distinction of staff, the more precarious its financial position becomes. In the programmes of economies, moreover, research has suffered disproportionately since the non-filling of vacancies has meant that staff have had to give more time to undergraduate teaching and less to research".

Conference report, page 2
Mr Habakkuk's speech, page 6

SSRC denies allegations of bias

Professor Robin Matthews, chairman of the Social Science Research Council, this week strongly denied criticism levelled at the SSRC by sociologists at Aberdeen University. He claimed that irresponsible allegations of bias had been made against the council's staff.

Aberdeen University has criticized the SSRC for what it describes as unwarranted interference in a contract between a university research team and a firm of market researchers. The university's sociology department has claimed that a major £66,000 study of social and occupational mobility in Scotland was jeopardized by a sequence of events during the past two years in which the SSRC intervened in a domestic matter and showed little knowledge of Scottish conditions. It alleged that some of the SSRC staff were biased.

But now Professor Matthews, in a personal statement to *The THES*, has hit back at the SSRC critics. He said: "Since the work of the SSRC depends on maintaining good relations with the academic community, irresponsible allegations of bias against its staff are not merely offensive to the persons concerned but undermine the basis of its work.

"I am gravely concerned that a well-intentioned attempt by SSRC staff in the autumn of last year to assist in the resolution of a dispute should have evoked public accusations of bias, culminating in a concerted attack on the SSRC by representatives of Aberdeen in the Press and at this year's British Association meeting."

Professor Matthews set out the facts of the argument between the research team and the SSRC which interrupted an important session of the British Association meeting in Guildford last week. The dispute between Aberdeen University and the market research company formerly contracted to work on the Scottish project financed by the SSRC, was still unresolved, he added.

"This disagreement, we understand may still be the subject of litigation. It has been made clear throughout that the SSRC is not and does not consider itself to be a party to this dispute," Professor Matthews said.

Professor M. P. Carter, of Aberdeen University, had accused the SSRC of intervening in a contractual relationship between researchers and a commercial firm at a time when legal proceedings between researchers at the university and the firm were pending.

At last week's British Association meeting he said that the council's involvement with a commercial firm had led him to believe that some form of code of practice was needed to govern the relations of research workers and commercial concerns. He demanded an investigation into the affairs of the SSRC.

Professor Carter told *The THES* that at a time of considerable financial hardship in the universities, vice-chancellors were turning their attention to the costs imposed through the administration of research awards from outside bodies, including the research councils. Any suggestion that a research council expected a university to disburse money wrongly or unnecessarily was therefore a cause for alarm. Professor Carter added that he hoped the research project would still be completed.

Professor Barry Supple, who stood in for Professor Matthews at the British Association meeting, said research councils had an overriding responsibility to make sure the money they gave out as research grants was being spent responsibly.

Contents

Whitehall insight



Sir Kenneth Berrill, head of the Government's Think Tank, was among the principal speakers at the British Association conference this week, reports pages 4 and 18

Excellence or equality?
Edited texts of speeches by H. J. Habakkuk in Moscow and Sir Alex Smith in Canberra, pages 6 and 8; leader page 12

Universities and history
W. H. G. Armytage reviews *The University in Society* edited by Lawrence Stone: "His account of that 120 years is so consistently hilarious that we can see why Oxford itself occupies a third of the two volumes", page 15

Class barriers, US style
The expansion of American higher education has not led to greater social equality according to Peter Scott in an extract from his new book, page 13

Coming and going
Sue Reid on Sussex University's admissions team, page 7; Bill Kirkman on university appointments services, page 9

South Africa
Joan Brickhill on new moves against black student leaders, page 9

Don's diary	5
Overseas news	10, 11
Letters	12
Books	15-17
OU programmes	10
Noticeboard	14
Classified Index	19

Two prophecies from Lancaster's vice-chancellor

In: more short courses; Out: general degrees

Economic pressures would force universities into running more short courses of one and two years' length, Mr Charles Carter, vice-chancellor of Lancaster University, said in introduction to the conference discussion on the aims and purposes of higher education.

Because the money available for higher education was no longer increasing, pressure would be put on the universities to concentrate on the vocational needs of society. This involved both training for specific jobs and general preparation on which professional training was built.

Mr Carter had doubts about the future of the general degree. Originally the professions made a distinction between the education of civilized men through subjects like classics and history and later professional training, but a society which believed in early maturity and early marriage could not tolerate lengthy two-part education.

Nevertheless this attitude persisted, he said. In accountancy, for example, many firms preferred to recruit as articled clerks graduates in general subjects from Oxford and Cambridge rather than graduates in accountancy from other universities.

Mr Carter went on to discuss the concepts of equality within differing interpretations of the universities' role. The British system was not one of real equality of opportunity, for the equality it offered was between those qualified to take degrees and not between those capable of some period of higher education.

Measures which purported to increase equality could have an adverse effect on the research done in universities. If teaching was related to research in inflexible proportions, the universities could suffer a real loss of excellence although some university claims were exaggerated.

"The truth is that research is necessary to universities as a means of enlivening their teaching or (more cynically) of attracting their teachers, but it cannot be shown either that universities are necessary to research or that a particular amount of research is necessary to the system.

"Worsening of the student-staff ratio or expanding those institutions which teach but do little research will be seen in the universities as a loss of opportunities for excellence either by the diversion of funds to other institutions or the spreading of available research money more thinly. However, there may be as much research in the universities as before; what is seen as a loss is really the disappointment of a professional expectation that every university teacher will have research opportunities, however many teachers there may be".

Mr Carter concluded with a plea for more information. It was not known just what conditions were necessary to produce good scholarship. He distinguished between what was professionally convenient and what was the truth in estimating how much "lavish attention on the intellectually able there needed to be". Countries with widely different policies on spending seemed to be able to hold their own in scholarship, he said.

The third international conference on higher education, entitled 'Excellence or Equality: a Dilemma for Higher Education,' took place at Lancaster University this week. Brian MacArthur and David Walker report

When selection equals loss of opportunity

"Abundant" evidence demonstrating that the assumption that "more meant worse" was false was cited by Professor Torsten Husen, of Stockholm University, in a speech on securing equal access to higher education. Empirical studies showed that a sizable loss of talent occurred in countries with highly selective university systems, he said.

Scholastic aptitude was to a large extent constituted of non-cognitive attributes. A massive empirical research showed that at most half the individual differences in educational attainment could be attributed to purely intellectual factors. The rest was motivation, interest, perseverance, health, and home background.

When so-called intelligence tests were administered to unsorted populations, the bell-shaped distribution of IQ, with the majority around the mean and increasingly fewer closer to the extremes of the curve, was simply an artefact of the norm-references procedure by which the tests were constructed.

Three further points were made by Professor Husen to show that an expansion of opportunity did not lower standards :—

- There were sources of evidence in social science research that the pool of talent was to some extent expendable. IQ could be considerably improved by additional formal education.
- There was on average a slight improvement in the mental ability of students between 1938 and 1943 when enrolments in United States high schools more than doubled. Another investigation has shown that the average level of ability among college entrants had risen from the 53rd to the 60th to 65th percentile between 1920 and 1965.
- An international study had shown that the top 5 per cent of 18 year olds in the United States, where there was a long-established system of secondary education, scored at the same level as their French, German, and British contemporaries in selective schools.

Professor Husen went on: "Thus we can to a considerable extent stretch the cognitive capital. But evidently a certain limit of enrolment constitutes a point of diminishing return in terms of pure intellectual assets, be they promoted by the most progressive social and economic policy. We should not forget that academic pursuits to a large extent also depend upon motivations, interest and perseverance.

"This applies not least to the high level academic pursuits that we call research. The potential researcher is often obsessed by intellectual interests. These plus his motivation sometimes are at least as important when it comes to a decision about embarking on the lottery of a research career as are the purely cognitive assets."

Whatever occurred, the present situation called for different models of admission to higher education. Two types of students could be distinguished who enrolled at research-oriented institutions: those oriented vocationally or towards a specific occupation who wanted competence, and a second minority category who were primarily intellectually oriented. Their major concern was not to prepare for a particular occupation but to broaden their perspective. They wanted the university to help them open up new vistas.

Although the modern university fulfilled complex functions including equality of access and opening universities to adults, what the academics—the professors like himself—were at pains to interested in were those students whose interests were primarily academic and who were willing to devote their lives to scholarly pursuits.

'Boundaries are slowly breaking down'

The boundaries between universities and colleges and between degrees and diplomas are gradually dissolving, producing a new "diffused system" of higher education, Dr Ladislav Cerych, director of the European Foundation at the Brussels Institute of Education, said during a discussion on access to higher education.

Dr Cerych said that new forms of study like the Diploma of Higher Education were abolishing the distinction between the universities and other sectors. A new system was emerging in Europe that was not quite one of universal access, but in which it was more and more difficult to define what was and what was not higher education.

He suggested that instead of thinking of higher education evolving from an elite stage through a mass phase to one of universal access, Europeans should face the transition from elite to universal without the intervening stage.

He put much weight on developments like the Open University as a new route subverting the old system. To the extent that principles of recurrent education will generalize, this indistinctiveness in terms of levels of the student population will become stronger still. The calculation of total figures for post-secondary enrolments by students will have to be revised. Thus if OU students would have been included in United Kingdom figures after 1970, almost no slowing down in the growth rate of British higher education would have appeared.

Dr Cerych put emphasis on the alignment of various trends in Europe and the point was taken up by Professor Marcel Goldschmid, of the Swiss Federal Institute of Technology, who addressed the group looking at teaching and learning. Professor Goldschmid isolated several recent tendencies, including more personal teaching, greater use of computers and various machines, the creation of "resource centres" and teaching by students themselves.

Likewise, assessment of teaching by the students was increasing throughout Europe, while at the same time more attention was being paid to better training of university teachers. Courses had been set up together with curriculum development schemes involving close co-operation among various specialists. Professor Goldschmid discussed what he called collaborative curriculum projects, where staff got together to make improvements in the material they were teaching.

"Groups of subject matter specialists in instructional media have begun on a few campuses to create materials of high quality. At the Open University this approach has been particularly successful and has become the rule for all new courses."

Professor Goldschmid then touched on radical alternatives in this area, listing the OU and the French University Without Walls among them. In another section of the conference, Professor Ian Lister, of the University of York, took this title to include much more fundamental changes in the organization of education.

Research 'needs environment of elite institutions'

Research and scholarship of the highest quality needed a stable environment insulated from the noise and turmoil of university politics and academic reform, Professor Martin Trow, of the graduate school of Public Policy in the University of California, Berkeley, told the first session of the conference.

Such an environment was most likely to be found within what progressives scathingly called "elite institutions". Within this category Professor Trow classed most British universities, many American graduate schools, and the French *grandes écoles*.

He said that despite attacks from politicians outside and academics within—some vice chancellors were hostile to the essential purposes of their institutions—he was optimistic about the survivial of elite higher education. This was not incompatible with higher education for 20 per cent or 30 per cent of the 18-year old age group.

"While elite higher education has its enemies, some of whom cannot be placated, it need not add to them out of its own hubris. I do not, for instance, believe that mass higher education or institutions with universal access for continuing education are the enemies of elite forms.

"The bulk of the provision for higher education cannot be in elite forms; for one reason it is too costly, for another only a fraction of students and teachers have the interests, motivation and abilities to take part in the intense personal and intellectual relationships that make up elite education."

Professor Trow said elite education was partly defined by the quality of the personal relations within it—teachers and students met within a community of scholars designed in the case of Oxford and Cambridge to teach gentlemen how to live a certain way of life. But it did not include training young men and women for specific occupations.

"The traditional English idea of the university is that education that does, in fact, have this vocational character must necessarily be bureaucratic, marked by relations between students and teachers which are defined rather narrowly by the technical syllabus, segmental rather than comprehensive, with obligations that are specific rather than diffuse."

However, elite education flourished elsewhere. Professor Trow cited the Massachusetts Institute of Technology and the undergraduate courses at Harvard and Swarthmore, or the tightly-knit graduate schools such as those at Berkeley.

All these colleges and schools came together in conveying to their students that they could accomplish big things in the outside world, make discoveries, influence the law and government, and add to knowledge.

"Institutions of elite higher education are machines for raising students' ambitions, and for providing social support and intellectual resources for the achievement of those ends. Mass higher education, by contrast, centres on the transmission of skills and knowledge through relations between teachers and students that are more fleeting and impersonal."

These institutions would survive, Professor Trow concluded, if only because of the importance of the contribution they made to economy and society. Despite their expense and inegalitarian nature, these universities and colleges had powerful roots. They were often backed by their former students who had gone on to become civil servants and politicians.

However, he emphasized that they were not the enemies of the mass institutions. They could co-exist, sometimes with patterns of elite education—like a teacher with a small class giving them personal attention—right in the middle of large, impersonal institutions like the American state universities.

An Induction Course for Teaching in Further Education and Industry

PATRICIA MacMILLAN AND LEN POWELL

Available either on its own or as part of a multi-media training package. Provides teachers and instructors at many levels with the knowledge and skill they need to begin teaching with confidence.

Cased £7.80 net Paperback £1.50 net

For details of the complete training package write to the Marketing Department.

Polytechnics: A Report

JOHN PRATT AND TYRRELL BURGESS

A research study into the objectives of the polytechnic policy and its consequences.

". . . an important and a timely book."—*Education.*

". . . closely written, interesting, valuable and provocative . . ."—*Higher Education Review.*

Cased £4.00 net

Teaching in Further Education

G. J. RUSSELL

A lucid introduction to aspects of learning and the principles of teaching, including examples of work preparation, presentation and illustration.

". . . an extremely handy little book . . ."—*Teacher in Commerce.*

Cased £1.20 net Paperback 75p net

PITMAN 39 Parker Street, London WC2B 5PB

UNESCO

Planning Buildings and Facilities for Higher Education

This forthcoming book synthesises a vast amount of information gathered by UNESCO into a set of practical guidance notes to be used by senior academic administrators working with architects and other members of the building team on planning new facilities or adapting existing ones.

It divides the building process into some 70 stages from the formulation of feasibility studies to the construction of individual buildings, showing who is responsible for what at which stage and providing helpful check lists and explanations for administrators at every point in such a project.

November 192 pages £9.25

The Architectural Press/UNESCO Press,
9 Queen Anne's Gate, London SW1H 9BY.

Lord Ashby hits out at student unemployment pay 'racket'

by Sue Reid

The growing practice of students registering as unemployed during their vacations has been condemned as a racket by Lord Ashby, past master of Clare College, Cambridge. He has called for Government intervention to halt the trend and a formalized academic work programme in higher education to ensure vacation study among students.

Lord Ashby outlined his strong feelings on the subject of students drawing unemployment benefit during a BBC radio interview. While stressing his fears over the rising unemployment figures he said his concern did not cover the thousands of students who claimed unemployment benefits.

He added: "To regard students, most of them already getting local authority grants to support their studies, as eligible for unemployment benefits is in my view a dangerous misuse of public funds; dangerous for the universities and for the students themselves. The sooner the Government puts a stop to it the better."

Lord Ashby said that Government action to match grants with living costs had been disgracefully late but he believed that being a student was a full-time occupation to be set against the student demanded at least 46 weeks of the year devoted to close application of academic work. If it was Government policy to remove the financial barrier to higher education, then the grant level should be based on the assumption that full-time meant full-time.

In three years a student had to acquire certain knowledge and the techniques for keeping this knowledge up to date and extended. This could not be done by attending lectures and classes for 30 weeks a year. The 10-week term was packed with information which could not be fully digested, with stimuli which could not be fully responded to, ideas which remained half-formed, and advice which could not be followed up. It was not until the pressure was off that the student had time to reflect on this and digest the heavy diet of term.



Lord Ashby: "Students ought to be financed on the assumption that they have to survive for 12 months a year."

Lord Ashby went on to say that vacations were the essential maturation period which had to follow each cycle of learning. They were complementary to the term and it was disturbing to see them abused with the support of public funds.

He suggested that a "topping up" loan system on top of basic grants could solve the problem of students needing to find holiday employment to pay the costs of their university education. This could be subject to a means test and would allow the student who wanted to be independent of his parents, or the student whose parents were unwilling to contribute their share, to have a loan and free himself from financial anxiety during his undergraduate course.

It was essential, Lord Ashby added, that the Government, having committed itself to the policy of removing financial barriers to higher education, should either stand by that commitment or, if the economy demanded it, publicly renounce the policy.

He went on: "If they stand by it it means that full-time students ought to be financed on the assumption that they have to survive for 12 months a year, not seven and a half months, without being obliged to take paid employment."

The universities should "underwrite" the description full-time student. This could be done by formally planning the work of the academic year as a 44-week operation, 30 weeks on campus under supervision and 14 weeks elsewhere, unsupervised.

There was nothing new about this and it already happened to some extent. Professors did assign formidable reading lists for vacations, and there were field trips for biologists and workshop practice for technologists.

But, Lord Ashby added, the present system was too permissive. It did not happen widely enough and could be dodged. An end of term check up on progress was not uncommon, but an end of vacation check up on progress was rare.

The simplest tactical measure to ensure vacation study would be to hold all official university examinations at the end of vacation, not at the end of term.

● The National Union of Students said later that Lord Ashby had made a valid point about students being financed on a full-time basis. If a student was financed for only part of the year, it was inevitable that he would look for finance from other sources for the rest of the year.

The NUS added that if a student failed to find work during the vacation he claimed the social security benefits to which he was entitled not to exploit the system but to live. It was the Government which was running the "racket" by failing to finance students properly.

Leader, page 12

Angry campaign group plans college closure ballot

A Herefordshire campaign group has rejected the Government's decision to close Hereford College of Education in 1979 and is to stage a referendum to find out local feeling.

The Herefordshire Survival Campaign maintains that the fate of the college is unacceptable because any further loss to the county should be resisted if it is to survive. It claims that the Government's ruling over the college contradicts a recently published county structure plan which states that higher education should continue to be centred at Hereford.

The Department of Education and Science decided to close Hereford College after the Hereford-Worcester county authority failed to come up with a strong recommendation on which of the three colleges of education of its area should be closed to comply with the Government's plan for a reduction of teacher training places.

Now the campaign group complains that the county council showed a shameful lack of support for Hereford College in spite of recommendations from its further education sub-committee and the education committee that the college should stay open.

The campaign group is to ask Mr Derek Senior, a leading planner, to investigate all aspects of Herefordshire's local government situation and recommend various alternatives to the merger of Hereford and Worcester which was introduced with local government reorganization.

Mr Senior's recommendations will then be put to the people of Herefordshire through the referendum and the Herefordshire Survival Campaign says Parliament will be informed of the decision.

A campaign to save Coloma College of Education in Kent, another of the 13 colleges which the DES has decided must close to reduce the output of teachers, is now underway.

The college staff and student action committee is to stage a special production of *son et lumiere* as part of its protest. The production was originally planned as the highlight of a recruiting campaign, now cancelled as a result of the closure decision.

£250m support plan for arts

A Labour Party Green Paper on the arts published this week has called for a separate Ministry for Arts, Communication and Entertainment. It also recommends an increased annual Government budget for the arts of £125m.

The paper, an interim report from the National Executive Committee's Arts Study Group, set up in 1973 and headed by Mrs Renee Short, claims the state of the arts in Britain is critical and puts forward an urgent programme of action.

The basic policy proposals included in the paper are aimed at creating a more decentralized and democratic system of finance and administration of the arts with not only an increased Government subsidy but higher grants from local authorities and sponsorship by industry and the trade unions.

Local authorities which provided in 1972-73, should raise a compulsory minimum rate of 0.50p for spending on the arts, the paper says, and funds collected by a levy on commercial television advertising should be channelled directly to the creative arts.

The decline of the film industry in Britain is given special consideration in the Green Paper, and the NEC study group strongly recommends that an immediate grant of £10m is allocated to save film production from collapse. It also proposes the establishment of a public corporation to take over the marketing sector of the industry.

The paper estimates that an annual total of £250m is needed to fully support the arts, with £125m coming directly from the Government and a further £125m from other sources. It points out that this is only 5 per cent of the total

UCW professor speaks against devolution

Professor Ivor Gowan, of the University College of Wales, is today (Friday) expected to take a stand against the threatened devolution of university education. He maintains that British universities should continue to be administered as a united group if they are to foster and preserve their independence and unique characteristics.

Speaking at the University of Wales administrative conference at Aberystwyth, Professor Gowan will suggest that university education should not be one of the functions devolved to any future Welsh assembly. He feels the present relationship of the University of Wales to the University Grants Committee and the British Government should remain as it stands.

However, Professor Gowan will add that if education is devolved to a Welsh assembly, the existing functions of the Secretary of State for Wales in the field of university education should remain intact or be transferred to any such assembly.

He believes the Secretary of State should then be consulted on university issues of special concern to Wales, and be able to appoint his senior education official as an assessor to the University Grants Committee.

Professor Gowan maintains that if an assembly is established the University of Wales should develop close links with it and seek representation on any education committee. The university should also widen its role as a degree awarding body for other higher education institutions in Wales.

Wilby joins THES

Mr Peter Wilby, formerly education correspondent of *The Observer*, is joining *The Times Higher Education Supplement*.

Correction

The present annual expenditure of the Open University is just under £18m, and not £11m as stated in

Expansion means less able students, Annan warns

by David Hencke

Academics are warned this week by Lord Annan, provost of University College, London to expect less able students to gain places in universities because of the expansion of higher education.

"Unlike the 1960s when numbers of highly able school-leavers were finding a place, the expansion of the 1970's is going to mean admitting for the most part increased numbers of less able students, some of them sucked into the system by convention, unmotivated, bewildered as to why they are there", he says.

Writing in a new book, *Universities for a Changing World: The role of the University in the late Twentieth Century*, he says that university entry, once a privilege, will soon be regarded as a right. "Soon the state, which has previously been a benevolent and distant provider of funds, becomes intimately implicated in planning the growth of universities."

He adds: "The erosion of the student grants—the inability of the Government to finance the expansion of higher education at a level to which a generation of dons and students have become accustomed—raises a multitude of questions about the role of the university in the future.

"Late as the British were to recognize the need to expand higher education, their tardiness has enabled them to avoid some follies and to permit the system to evolve at a pace which, if it has led to some dilution of the standards of being a don, has not swamped the profession with new recruits who neither understand nor accept the conventions of their calling."

He also expects more competition from the polytechnics because of their more vocational orientated courses and lower entry standards.

He concludes by asking whether the need for managerial talent and techniques will transform the universities into vocational factories or whether the egalitarian movement "in its fear of meritocracy will lower their status, abolish their intellectual standards and relieve them of their role of certificating the young?"

"The real test for some universities will come when they are no longer capable of further expansion, either because their sites are fully exploited or because further increases in student numbers or research facilities for whatever reason are not feasible. At this point they will become institutions of zero growth. That will be their hour of trial."

Lord Annan's contribution is one of 11 on universities in different countries. Others cover China, Russia, Australia, India and the West Indies.

Universities for a Changing World, edited by Michael D. Stephens and Gordon W. Roderick, is published by David and Charles, South Devon House, Newton Abbot, Devon. Price £5.50.

HIGHER EDUCATION

The International Journal of Higher Education and Educational Planning

Editors: Alec Ross, Philip Altbach, Ladislav Cerych *and* Gareth Williams

1975: Volume 4 (in 4 issues)
Personal subscription rate: US $21.25/Dfl. 50.00
Institutional subscription rate: US $39.95/Dfl. 94.00
Back volumes 1-3: US $42.75/Dfl. 100.00 per volume

STUDIES ON EDUCATION

A series of books published in cooperation with the Higher Education Research Unit, London School of Economics

1: The Practice of Manpower Forecasting
A Collection of Case Studies
by BASHIR AHAMAD and MARK BLAUG
1973 360 pages US $13.50/Dfl. 32.00

2: Returns to Education
An International Comparison
by GEORGE PSACHAROPOULOS and KEITH HINCHLIFFE
1973 223 pages US $11.50/Dfl. 27.50

3: The Academic Labour Market
Economic and Social Aspects of a Profession
by GARETH L. WILLIAMS, TESSA BLACKSTONE, DAVID METCALF
1974 384 pages US $20.95/Dfl. 50.00

4: Efficiency in Universities
The La Paz Papers
by KEITH LUMSDEN
1974 290 pages US $18.25/Dfl. 43.50

5: A Fresh Look at Higher Education
European Implications of the Carnegie Commission Reports
by JACK EMBLING
1974 278 pages US $14.75/Dfl. 35.00

6: University Costs and Outputs
by DONALD VERRY and BLEDDYN PRYCE DAVIES
1975 288 pages US $17.75/Dfl. 42.50

Elsevier
P.O. Box 211,
Amsterdam, The Netherlands

BRITISH ASSOCIATION

David Dickson and David Walker report from Guildford

Change of direction for scientific research 'bound to be painful'

Any period of rapid growth in public expenditure will inevitably be followed by a painful period of deceleration, Sir Kenneth Berrill, head of the Cabinet Office's Central Policy Review Staff and a former chairman of the University Grants Committee, told a meeting of the general section of the British Association.

When such a deceleration occurred, for example, in the demands for professionally-qualified manpower—such as for teachers, lawyers, or architects—the number of training places was bound to appear too high, and promotion prospects were bound to be greatly reduced.

"A slow-down has to occur sometimes, and is a social cost that has to be inserted at the beginning of any period of expansion as part of the price to be paid", Sir Kenneth said.

"In the 1960s, the growth rates of the new universities, for example, were very high, and at the time it seemed to be very hard work growing at that speed. When people today look back, however, these seem to have been the golden years."

People would inevitably argue that closures of training programmes and cutbacks in other areas were a mistake, but much of the present unhappiness was caused by the general slowdown shared by many areas of public expenditure.

Sir Kenneth said that as well as the effects of deceleration on scientific research, there had been strong pressure for changes in the direction of science resulting both from the changing interests of students, and from the kind of science which governments and the public were asking from the scientific community.

"In most western countries, Ministers are asking for science to be increasingly directed towards social problems, but it is very dangerous to underestimate the difficulties of making such a shift in practice," he said.

Any shift, for example from "high" to "medium" technology, as had been suggested by the Organization for Economic Cooperation and Development, was bound to be painful, and so too were attempts to relate science more directly to social decision-making.

"The real world of our present society is so complex and varied that it is very difficult to apply even one of the science or social science disciplines, for example, economics. Interdisciplinary approaches are incomparably more difficult", Sir Kenneth said.

"It will probably be some time before the degree of uncertainty is reduced. It will be a long hard slog, and we must be suspicious of quick results."

A shift in resources was the first important step, but there was also the problem of the social prestige attached to difference types of activity, which was much more difficult to tackle.

"Perhaps the slowest process is getting technology on the same par as science in British society. It is one thing to come to a decision about the need for more professionally-trained engineers, but quite another to attract school-children into engineering", he said.

Sir Kenneth said that at a time when resources were growing slowly, it was even more important to look at the present orientation of science, particularly on account of the length of time that elapsed between any desired change in scientific priorities and a change in scientific output.

Referring to the reorganization of the research councils that had taken place in 1973 after proposals put forward by Lord Rothschild, he pointed out that Lord Rothschild had been concerned primarily with the natural science and with technology.

"Papers published recently by OECD, however, show an increasing concerning with social problems, relating directly to the work of the Social Science Research Council. The shift in priorities suggested by OECD should perhaps lead us to look more in these directions in any future review of research organization."

Sir Kenneth said that as soon as scientific work approached decision-making, it had to become interdisciplinary, and that policy-making was essentially an interdisciplinary activity.

"I would hope that scientists would want to get very much more involved in this type of decision-making than they have done in the past", he said.

They could participate in decision-making either as intelligent generalists, or by applying their scientific skills and techniques in conjunction with others in an interdisciplinary manner.

"This is quite a major challenge to today's scientists. It is posed by a sharp deceleration of funds on one hand, and the redirection of scientific efforts asked by governments and the public on the other", Sir Kenneth said.

The pragmatic question that faced young scientists was whether the system would continue as it had done in the past, or whether the future for them lay in much closer involvement with what some called "administration", and others "bureaucracy".

"Whatever happens, scientists will no longer be allowed to stand on the side lines and to criticize the people that they have left to take the decisions", he said.

"The required changes may not need a very large shift in resources or people, but they need both attitudinal and institutional changes that promise to make it a long haul with an uncertain pay-off."

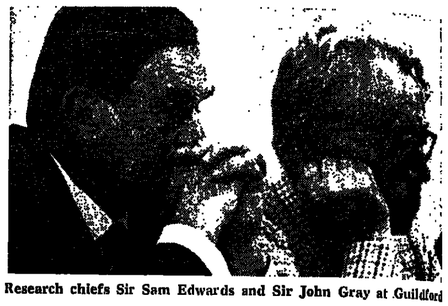
Earlier in the meeting Sir Alan Cottrell, master of Jesus College, Cambridge, and until recently chief scientific adviser to the Government, claimed that although science provided the substance of economic prosperity, it could do so only if industry received the required financial support from elsewhere.

The contribution of science to the national economy was therefore highly vulnerable to factors lying outside science, and the outstanding factor was the general attitude of Government to industry.

"There are some useful things science can do in making existing things work better and last longer —the practical applications of scientific knowledge about corrosion, lubrication and plant reliability, for example", Sir Alan said.

"But, so far as the whole national economy is concerned, science can only be an assistant, not a principal."

Sir Alan Cottrell's speech, page 18.



Research chiefs Sir Sam Edwards and Sir John Gray at Guildford

Trade unions seek a voice in decision-making

Strong criticism of the lack of trade union representation in the decision-making machinery of the research councils was made during a public discussion of the work of the five research councils.

Dr Michael Robinson, chairman of the National Staff Association of the Medical Research Council, asked why the Government had not taken up a suggestion made by the House of Commons Select Committee on Science and Technology that each research council should include members of appropriate staff associations or trade unions.

The same point was raised by Mr Tony Hall, a member of the national executive committee of the Institution of Professional Civil Servants, who said that the institution represented a large number of scientists employed by the Government in, for example, the research councils.

"Trade unions have a right to be considered for representation on the decision-making committees of the research councils. In a wider sense, they have an important contribution to make to discussions on dividing up the national cake, he said.

In reply, Mr Airey Neave, Conservative Member of Parliament for Abingdon, and a past chairman of the Select Committee, said that the committee had been angry that the Government had not taken up its suggestion that trade unions and staff associations should be represented on the research councils.

The suggestion had been made in the Select Committee report on the proposals put forward by Lord Rothschild on the organization of Government research and development, and the committee was still keen for it to be adopted.

A speaker from the Institute of Geological Sciences said he did not believe that in the current circumstances, scientists were the people to decide what research they should do.

Contrary to the view that the scientists who sat on research council subcommittees took a balanced view of the requests for grant funds that came before them, he said that there seemed to be many prima donnas who took a very blinkered view of the world.

Sir Sam Edwards, chairman of the Science Research Council, said he objected strongly to the implications that members of a research council were dividing up any cake between themselves. "There is no great advantage in putting the man in the street on to a research council, as he will not understand what is taking place", he said.

"Nor is it reasonable to expect people who are not skilled in particular areas to take on the work of specialist committees. I feel that the present system, with representatives of industry and Government departments on many committees, is indeed in balance.

Earlier Sir Sam had drawn attention to the difficulties being faced by the scientific community as a result of cutbacks in public expenditure.

"Science is a continually developing activity, and just does not live in a no-growth situation. When money is short, exciting developments in one field can only be accommodated by cutting out activities somewhere else", he said.

In particular, the falling value of the pound had caused considerable problems for the Science Research Council because of the resultant increase in its subscription to the European Centre for Nuclear Research (CERN) in Geneva.

"We are in a Catch-22 situation, since however much we reduce expenditure on our own high energy physics laboratories we cannot keep up with the extra costs caused by the falling value of the pound, and are therefore virtually unable to cut our nuclear physics budget", Sir Sam said.

"We can foresee a time when, unless things look up, there will be no high energy physics in Britain at all; the high energy physics community feel that this would make things very difficult for scientists in this field."

End incomes debate—Aubrey Jones

Economists should end their sterile debate about the rival merits of an incomes policy or manipulating the money supply, Mr Aubrey Jones, former chairman of the Prices and Incomes Board, said in his presidential address to the economics section of the British Association.

The debate was over because the country now had an incomes policy which would inevitably continue, Mr Jones added.

"Let economists bend their minds, if need be in concert with other social scientists, to the constructive but difficult task of analysing and assessing the degree of inequality of incomes which might commend itself to the people of Britain."

Ending his speech on inequality, which set the theme for other papers in the economics section, Mr Jones talked about Government policy. The £6 limit would diminish income inequalities and, from an egalitarian standpoint, it would be desirable for the policy to continue, regardless of its success in combating inflation.

Mr Jones saw in incomes policy a means of reducing unjustifiable income differences, at the same time equality. It could secure a rational and reasonable pattern of incomes.

In contrast to Mr Jones' discussion of policy was a paper from Mr Alan Harrison of Strathclyde University, which showed differences in wealth over the years and discussed the difficulties that available figures present to the economistician.

In essence Mr Harrison's research showed that the top 5 per cent of the wealthy in Britain had been losing their share of the property and shares less quickly than previous evidence has suggested. In fact very little change in the distribution of wealth had taken place since 1951. It seemed that the years of the Second World War and the Atlee Labour Government had seen the most significant reduction in the holdings of the wealthy.

Mr Harrison criticised the Royal Commission on the Distribution of Wealth, which recently produced a first report, for ignoring the need for series of figures through time that were fully consistent.

Other papers on the theme of inequality took up both points of detail and the more philosophical questions under the heading. For example Professor C. T. Sandford of Bath University, looked in detail at the mechanisms for taxing personal wealth comparing the capital heritance tax. By contrast Sir Roy Harrod, the distinguished senior economist, discussed educational equality with reference to selective secondary schools.

Other papers crossed the borders into areas being discussed by the sociologists, the wide questions of social justice and dependance on the state.

If sociology and economics sections found common ground, the other social scientists at the meeting kept within their divisions. The anthropologists discussed several themes, including medical anthropology and the overlap of their subject with archaeology. They also heard papers on the philosophical implications of their subject.

Dr F. C. T. Moore, of Birmingham University, contributed a paper which chastised philosophers for claiming too great a catchment area, calling them intellectual nomads. Anthropology was entitled to study concept as well as philosophy, he said.

In other sections like psychology and geography, the social sciences took their turns with aspects of those disciplines more properly "scientific" in the traditional sense. The geography section, for example, heard a paper on the geomorphology and human geo-

SSRC's work on Scottish oil attacked as 'paltry'

The efforts of the Social Science Research Council to investigate the social impact on the Scottish economy were paltry, a sociologist told the symposium on the working of the research councils.

Dr Robert Moore, of Aberdeen University, criticized a new SSRC committee to coordinate research in the social effects of North Sea oil as ineffectual and administratively confusing. He said that years of work at Aberdeen had gone unrewarded.

"No credit whatsoever attaches to the SSRC for most of the work now being done at Aberdeen and other Scottish universities. Much effort which should have been put into research has been extended trying to persuade the SSRC and other agencies of the need for broad-based coordinated and systematic research to be undertaken as a matter of urgency."

Dr Moore's criticism came only hours after the symposium under the chairmanship of Sir Bernard Lovell, president of the British Association, listened to charges of SSRC officials over a research contract. Dr Moore was replying to a paper by Professor Fred Martin, of Glasgow University, describing the SSRC's work.

Professor Martin was a member of a small advisory panel set up by the SSRC at the end of last year to examine the need for research on the social impact of oil. He described Scotland as a "laboratory of social change" with new patterns of employment and settlement following the oil boom.

The SSRC recently decided to set up a committee with funds of £150,000 to provide for research on, for example, the strains on local communities or the repercussions for local industries of new oil installations and exploration supply depots.

It is understood the SSRC will publish the report of its advisory committee within a few weeks. The committee will describes in detail the research at present being conducted in Scotland.

Dr Moore argued that this knowledge is now out of date and funds for research into a rapidly changing area should have been made available

Don's diary

Writing disease

Glancing back through the university's annual reports, I am again struck that some of my colleagues publish regularly and frequently while others are silent as the tomb. Is there a disease which strikes selectively—and who has it: those who write or those who don't?

So far as I can ascertain, the non-writers are neither better nor worse teachers, administrators and seminar performers than the others. Nor are they notably less confident in public academic debate—they simply don't publish. Could it have anything to do with research supervisors failing to encourage the fledgling academic? Or is there a psychological blockage brought on by the sight of a pile of untarnished white paper?

A simple solution to the latter difficulty is to cut A4 in half, write the stuff in bold, large script, leave wide margins and use a variety of coloured inks and paper. In this manner one rapidly works through piles of paper, a comforting heap of manuscript is accumulated and the occasional frisson of aesthetic pleasure will be experienced when the colour combination works.

Even more important, though, is to *write*: get something on paper, if necessary without much preliminary agonizing about what form it is going to be. Amazing how ideas come when writing and do not when thinking about what to write.

It all sounds banal, but it works with me and has done so with some 10 years of graduate students and collaborating colleagues. Before I forget: buy a new pen for each new book—with luck the royalties will cover the cost of that.

Thesis art

A curious art that of supervising graduate theses. Usually I find myself in the role of cautious academic insisting that a dissertation is limited, that time does fly and that no one expects too much originality to shine through. The result is normally a competent piece of work, few signs of great genius, a couple of articles and a fairly satisfied external examiner.

I was luckier since I commenced research with two really fine supervisors and a fortunate topic which turned out to be suitable for a monograph. That was back in the stone age of British academic political science when all the obviously publishable research topics had not been grabbed. Much more difficult now!

Today I am not even sure that one should encourage the would-be academic to become a research student at all since the prospects of obtaining a job are slight. But still the applications continue to roll in especially from the Middle East, India and Pakistan. A real problem here since none of us in Exeter has much information concerning relative standards of the universities from which the applicants graduated and one cannot exploit the expertise of Anne Bohm at the LSE too shamelessly.

Birth control

Back in 1962 doing research for a piece on the politics of birth control in England I visited the original Marie Stopes Memorial Clinic. After a few minutes of inconclusive chat a couple of girls in need of advice turned up and I was shooed into the back room. Glancing around the bookshelves I found a couple of unpublished letters of John Stuart Mill. Great excitement, name will live for evermore, serendipity etc.

The letters did eventually find their way into the Toronto edition of Mill's collected works, July 1975 —had lunch with Mr Rupert Croft-Cooke who told me that just after my visit, whilst researching for an Oscar Wilde volume, he had discovered a pile of letters from Bosie in the same room. Felt a bit deflated: it was a *small* room.

On their uppers

No hard evidence other than my impressions as an external examiner, but I expect that over the years the percentage of upper seconds in final degrees is on the increase. And this during a period when it is widely believed that the level of student motivation to work is less than it used to be, and quite certainly lower than it was during the old days of National Service. Is it that we are teaching better or more intensively? Has it anything to do with the narrower options that we offer our third-year students?

Certainly in every department in which I have taught the extent of staff teaching involvement, with students is much greater than it was at the LSE in the mid-1950s: smaller and more frequent tutorial groups, better reading lists, more essays (and quicker return) together with fewer and better lectures. Combined with narrower and often more technical third-year options such intensive methods are bound to lead to "better" eventual results.

Yet it does not necessarily follow that such students will make adequate researchers and it is often quite difficult to explain this to would-be graduate students. I wonder if we need a fresh look at the upper second with a view to dividing it somehow?

After the boom

After the 1960's sociology boom, when it experienced the sort of public esteem that folklore and history enjoyed during the years of German unification, has come the reaction. Sociologists are accused of crimes as varied against public weal as were the freemasons following the French Revolution.

Academics, usually uninformed about British sociology, lead the pack in pursuit of triviality, banality, incompetence and, not surprisingly, find some of each. There are stupid and pretentious sociologists, but I find them no more characteristic of sociology than their counterparts in, say, psychology, history or political studies.

If the complaint is that sociology is intrinsically a non-academic discipline then let this be demonstrated. Should no one care to undertake this task then perhaps it is time to declare a moratorium on sociology hunting and sociologist baiting? How about a new sport for the pack called "reading sociology"? Or maybe the media could redress the balance by presenting a play in which the hero, a middle aged, beardless, Burton-clad, toothed sociologist finds his way, without a research grant, to the local bordello and rescues a Marxist historian from the interpenetration of opposites?

Summer vacation at last and the opportunity to start work again on a couple of long delayed articles. Before that though I must attend to three book reviews, act as external examiner for two PhDs, read the final submission of two of my own graduate students, read MSc(Econ) scripts from the LSE, assess a number of articles for journals, attend a couple of editorial board meetings, finalize some of the arrangements for the 1976 conference of the Political Studies Association, work out the departmental submission to the SSRC and finish the proposals for a series in political sociology I am to edit.

Why is it that no matter when one accepts a responsibility it always comes home to roost at the beginning of the long vacation? I want to do these things and, indeed, enjoy them but they get in the way of research. Perhaps after 15 years of university teaching a total break is necessary during which one should leave the country for a couple of years. This would break the chain of commitments and leave one free to start again. Horrible thought!

During that period I learned enough about university teaching to survive, but never mastered the technique of one historian who, when lecturing the large and very demonstrative student audience, could at will orchestrate the jeers, groans, claps and laughter almost into a Mahler symphony.

The open season for chairs is almost finished—and no luck, or at least no chair. Older and wiser heads tell me that a readership here in arcadia is a brave thing, a position to be envied since I can get on with my work, keep off committees and not have to tolerate idiots. And Devon is truly a magnificent place to live. People actually come here for holidays. Only the other day a pale economic historian from the badlands beyond Taunton told me he was holidaying in Exeter University and having a marvellous time in the open-air pool, the tennis courts and a gymnasium set amidst a splendid collection of trees on a campus second to none in the country.

All this and no serious trouble with revolting students to be left for a title? But British universities, most British universities, offer a chairholder the opportunity to create a department—give or take a few old lags—and for that I would gladly give up reading for a few years.

For me the major snag is the performance before a selection committee when any question on any subject clears my mind wonderfully, leaving absolutely nothing in it. Blurt out a few inanities, forget my name, can't remember their names and catch the train home in a daze. Sympathetic colleagues have advised uppers, downers, transcendental meditation, deep breathing, hypnotism, drink, the friendly neighbourhood shrink or a firm and inquiry glance at the people on the other side of the table.

Peeping Pats

The relentless march of the permissive society took yet another step towards Exeter recently with the prosecution of a club in Dorset exhibiting male strippers for ladies suited with Hardy. Up to now the university has experienced only a phantom flasher and the usual quota of raincoated peeping Toms. No doubt with the example of Dorset so near to hand the first peeping Pat already trembles on the brink of exposure. Much sixth form persiflage in the theatre bar concerning stage names for Exeter University's first male stripper and, so far as I am aware, non-empirical speculation concerning the drawing power of various illuminati amongst the professoriate. Also considerable speculation about the best way to peel a string vest—overturn or shimmy out of it.



Dorset ladies sated with Thomas Hardy are turning to male strippers.

Join here

For some months now, along with the rest of the newly elected executive committee of the Political Studies Association, I have been worried about the problem of recruiting into the association the very large numbers of men and women teaching politics in the polytechnics.

The problem is a simple one: most polytechnics do not have departments named something like political studies or government and, anyway, do not have their junior teaching members as is the custom in universities. We do not know the names and, therefore, cannot contact the people who by virtue of their relative isolation might benefit most from the many activities of the association.

Perhaps an item in "Don's Diary" inviting potential members to contact Ian Budge, in the department of government, University of Essex, might help?

Robert Dowse

The author is reader in politics at Exeter University.

Learning till it hurts



DAVID MARTIN

Like most serious vocations an intellectual calling involves a special pain. Max Weber is often quoted as saying "I wanted to see how much I could stand". Making sense of a problem, shaping resistant materials, reconciling alternative perspectives, integrating the awkward instance, recasting the old in the light of the new, shifting to a new level of abstraction—these are all activities which can cruelly crack both mind and will.

Nor is there any serious respite, because a problem goes on kicking in the mind like a child in the womb. Once throw away your intellectual contraceptives and you find there is no time off from pregnancy. You are sick of a new possibility.

You have to accept two contradictory disciplines: waiting and not waiting. There is no unambiguous sign of the end of intellectual term: tiredness is not always recognizable. Some people are so aware of this above all other problems that it absorbs them permanently.

The uncertainty about readiness is the first pain of the intellectual, his initial *douleur*. Some of the most creative and rich intelligences are occluded by the shadow of this single pain. The richer the mind the more impossible it is for anyone else to play the role of doctor or confessor and declare no more is required. The doctors of the church of the intellect have no confessors.

The second pain of the intellectual vocation and its most unavoidable *douleur* follows from the first: loneliness. When something new is in wait, like birth or death, you have to be alone. There is no father figure to whom appeal can be made. This is one reason why there are so many fraternal requests for commentary and criticism and why the search for dependent relationships is so continuous and unavailing. Most prefaces both record these fraternal and filial debts and acknowledge the loneliness: "none of whom can be accounted responsible for the opinions and conclusions here expressed".

Graduate students experience this loneliness for the first time and grieve like children suddenly orphaned. They can't accept that there comes a time or a point when nobody knows more or better. The condition may be very marginal in their case but as an experience it is not less intense for that. They have to accept that their fathers have provisionally. An intellectual knows that what he has seen is truer than he knows but in some other context which he has not seen, and for that very reason his vision is simultaneously falser than he realizes.

This knowledge of the partial character and partiality of knowledge means living by open criteria of truth and falsity, capable of acting as rigorous filters without forcing premature closures. The simple and crude formulation of this is open-mindedness, and some false intellectuals simulate it by automatic reversals of what they take to be the conventional wisdom or clever scepticism.

It means moving forward through densities and illuminations, long periods of increasing complexity broken down by rapid simplification. The last simplification can look oddly like the first but it is very different. The first clarity casts a powerful retrospective light where the first simplicity encounters only limitation and darkness. Intellectual pain is charted up and down the daily lines and crosses of these complexities and simplifications, illuminations and densities.

The last pain is to accept the relevant diversion, and this pain is increased because you don't know how much time you have in hand, and there are, after all, other things to be done. Given one trajectory this or that diversion is relevant; given another it may not be. But relevant diversions cannot really be bypassed. They aren't *routes touristiques* which you can choose to leave, on one side, or mere *déviations*,

A relevant diversion is organic, with a shape you need to encounter and a contour you must reconnoitre. Without that *déviation* you won't ever arrive. The direct road is really a *route barrée*. The upper mind looks one way but the internal world hunts, revolves and shifts by its own obscure modalities.

The intellectual must live with this organic, dark, quick, internally regulated body and learn merely to feel rather than force it. It will produce a sequence of related and properly formed shapes in due time. This is the problem with which I began: readiness. The intellectual lives by trying to distinguish between waiting and wasting. He has to discern his curriculum vitae without benefit of formal timetable. Part of the defence of the university is a defence of this kind of person. There are many other defences—to which we shall need to look—but this is the inner and inward defence. The university protects a particular kind of intent, a special discipline and a peculiar pain.

H. J. Habakkuk's speech to the International Association of Universities conference in Moscow

The university at the approach of the 21st century

We are here to consider the problems which will face the universities over the next 25 years. I want to isolate some questions which seem to me crucial for our future and attempt a personal guess at the answers. I shall confine myself to universities in advanced industrial countries

My first set of questions is about the functions of the university; my second, about the future size of the university population; my third and last about relations with the state.

Will the different functions, which historically have been combined in a university, remain together in a single institution? The primary purpose of the university, the central purpose which the university exists to serve, is the search for knowledge and fundamental understanding in all intellectual disciplines and the transmission of that knowledge and understanding.

It has also been a function of universities to give to young people from a relatively narrow age group an education designed to develop their general intellectual capacity. In addition, universities have provided a specialist training for their professions which require not merely general intellectual ability but specific knowledge and skill. There are very cogent reasons for the association within a single institution of these functions—research and teaching, general education and training in professional skills.

The association of advanced teaching with research benefits both. Universities do not exist simply to transmit knowledge already in the books. Research, for its part, is the more effective if the researcher has to communicate his ideas about the field in which he works—about the field in general and not merely about his immediate research subjects—in a simplified form to an audience of students.

Research on a large scale is undertaken at the Bell laboratories, in government departments, in specialized research institutes—segregated from the university and divorced from advanced teaching. Advanced teaching of high quality can take place in institutions which do little or no research, at many American liberal arts colleges, for example. An education in general intellectual skills can be provided by colleges which do not claim to teach at an advanced level.

Training in advanced professional skills, moreover, is sometimes provided in non-university institutions—in technical colleges, colleges of education, staff colleges and the *Grandes Ecoles*. Moreover, there are some institutions which combine research, advanced teaching and professional training, but only in a single intellectual discipline, such as schools of business studies or hospital medical schools.

The concentration within a single institution—the university—of these diverse functions has probably always involved some degree of tension, but the tensions have been intensified in recent years by three developments: the increase in knowledge and the rapidity with which it accumulates; the growth in the size of the university population and the change in its composition; and the increase in cost.

Despite the tensions, however, between the various functions of the university, they have, as Professor Parsons observes "remained together in a single bundle and have not come to be distributed among structurally separate and distinctive units".

How far will this continue to be true over the next 25 years? Will universities continue in an age of mass tertiary education the combination and balance of functions which has characterized most of their history?

The answer to this question depends primarily on the size and nature of the demands facing the universities over the next 25 years. I turn now to the second of my main questions.

Will the growth of university population so marked a feature of the past 25 years, continue in the next 25? Or are we at the end of the period of expansion and about to enter a "steady state" in which the university population will stabilize if not decline?

If expansion continues our major preoccupation will be how to produce new buildings and new curricula for larger numbers and a wider range of abilities and tastes. If it ceases we shall still have worries but they will be different: how to provide scope for fresh blood and new subjects despite a stationary establishment.

Are the problems of the future how to cope with continued growth, or how to remain healthy without growing?

There are forces which are unfavourable to continued expansion. On the supply side the unit costs of all forms of education will tend to rise continuously in relation to unit costs in the rest of the economy, for education is a very labour-intensive activity and also an activity where only limited increases in output per man can be achieved without destroying the quality of the product.

Neither in teaching nor research are opportunities for achieving a continuous increase in productivity available as they are in other sectors of the economy. Further education, therefore—along with other forms of education—will tend to become a relatively expensive activity.

There is also a restricting influence on the demand side. The absolute number of young adults—the age group from which most students in post-school education are drawn—will in many parts of Western Europe and the United States cease to increase in the 1980s and in some areas it is expected thereafter to decrease.

Thus the relative cost of further education will rise and the age-group which has provided most of the demand will stabilize. On the other hand there will be some influences favourable to an increase in demand for further education.

Over the past 50 years, as countries have industrialized and as income a head has risen, a progressively increasing proportion of young adults has wanted to go on to some form of further education. There are some who argue that when the proportion reaches 50 per cent—as it has in the most advanced industrial country, the United States—then we approach a limit beyond which very little expansion is likely.

Whether there is a limit or whether advanced societies will ultimately provide a post-school education for virtually everyone is an immensely important question. But even if there is a limit—and even if it lies about the 50 per cent mark—many advanced countries at the present time give further education to less than 50 per cent of young adults and in these countries at least the percentage will continue to increase for some decades ahead.

There is another and more interesting possibility. We may be faced in the next 25 years with a fundamental change in the structure of demand for further education. Despite many innovations, the present pattern is still fundamentally one in which 20 years of education are followed by 40 years of work without education.

There are signs in many countries that this is changing. Many people want to start their further education only after a long period of employment, or they want to study part-time while they are still in employment. There are also people who, later in life, need to bring their knowledge and skills up to date and adapt them to new needs, or wish to widen their horizons by taking up new subjects.

Demands of this kind, of course, are not new—some of them indeed are very old—but they have become more pronounced in recent years, and new institutions have been created and old institutions adapted to enable adults to take education when and in what form they want it.

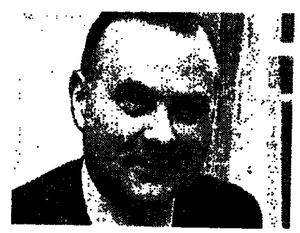
Some educationists believe this is where the future lies; they hope to see a new synthesis between learning, work and leisure; they expect that recurrent, continuing, life-time education will become a major—perhaps the major—form of further education in advanced industrial society.

It is clear, for example, from the success of the Open University in Great Britain, that television—the major source of innovation—lends itself particularly to the education, especially part-time, of adults of all ages and it evidently has considerable potentialities. But the preoccupation of so much further education with the 17-24 age group was not fortuitous.

The capacity to absorb information, to master a discipline or acquire a skill is greatest in the late teens and early twenties and though it is often said that the adult student has a keener sense of what he wants to study and a stronger motive to succeed, there is no easier way to apply oneself to study when one is young than after years of employment.

But of course, even if these doubts about recurrent education are well-founded, even if there is no radical transformation, there will certainly be some increase in demand for continuing education, particularly in the demand for "post-experience" courses designed to retrain and bring up to date.

For all these reasons I believe that the course of social and economic change in the remainder of this century will produce an increase in demand for further education, than if at a slower rate than in the past. Its strength will obviously depend on how fast incomes rise; and it will make a difference whether the demand is geared to the labour requirements of the economy or to the aspirations of private individuals. But that the underlying forces in the next 25 years will on balance be favourable to expansion I do not doubt.



'There is some danger that society will lose sight of the distinctive competence of a university, which is to serve as a centre of learning and free inquiry, of civilization and culture'

The education for many professions which used to be entirely or in part "on the job" is now increasingly provided within the universities—social administration and business management, insurance, accountancy, actuarial work; and while no doubt this is in part a product of a mistaken passion for certificates, it is mainly a sign that the training for these professions has become more advanced and more academic. The trend will continue.

It is, moreover, precisely these highly qualified specialists who will represent the most pressing demands for post-experience courses.

Finally, among the growing specialist demands, will be demands for research as the basis for new technology and to improve methods of dealing with human and social problems. I recognize that these might be met by the growth of a separate, specialized research sector—a quarternary sector beyond the system of tertiary education—and that this has happened in some places. But I believe that this is not the way developments are likely to go in Western Europe.

Some people agree that for these reasons there will be a growing demand for university education, but believe there are not enough potential students sufficiently clever and interested to profit from such an education.

The evidence on the point is ambiguous, but I should guess that among those children who at present do not go to a university there are a fair number no less able than those who do: able boys and girls (especially girls) who, because of family background and attitudes feel no particular desire to enter a university.

University work is intellectually arduous; it is not to everyone's taste. Such attitudes may be difficult to change but my own belief is that economic development will weaken such attitudes and diffuse the ambition to enter a university.

No one can be sure how much untapped ability of this kind exists. There is, moreover, no absolutely hard and fast line of demarcation between those who can and those who cannot profitably study at a university. There is, rather, a debatable borderland of ability and motivation, and at what point in this borderland university entrance should be set is a difficult matter of judgment.

It is the essence of the university that it is selective, but exactly how selective should it be? To what extent should the university attempt to provide for people who wish to continue their education beyond school but are less well equipped for advanced intellectual study or not strongly committed to it? The size of the university sector, and its character, will be as much influenced by our answer to this question as it is by the distribution of academic ability among potential candidates.

There are advantages in educating a substantial part of what I shall for convenience call the "non-academic" part of the population in the university, in an ethos determined by those who are committed to the pursuit and transmission of learning. Some people of limited academic ability or commitment will, in later life, be leaders of their community, as city councillors, magistrates, businessmen, entertainers, as journalists and politicians.

The life of society will be healthier if these leaders have wide horizons, a sense of continuity, some appreciation of the complexity of problems and the need for intelligent thought in dealing with them, qualities which we like to think are encouraged by a university education.

The contrary argument is that the inclusion of large numbers with a limited capacity for academic work, or only a very weak interest in it, would make it difficult for the university to function as a centre of teaching and research. It would certainly render inevitable extensive changes in curricula.

We are all familiar with the long-standing debate whether undergraduate courses designed primarily to enable specialists to master their subjects—still the basis of most university education—provide the best education for the non-specialists.

The latter would be better served, it is urged, by a general education framed specifically to meet their needs—an education which introduced the student to the main fields of knowledge (scientific, historical, linguistic) or gave him an insight into the principal methods of thought; a broad-based education stressing range and diversity rather than depth.

It has also been argued that non-specialists would be adequately served by shorter undergraduate courses, and various proposals have been made, for example, for a two-year course of general education at the end of which those with the appropriate ability and aptitude would proceed to a further two years of more specialized but still undergraduate study.

Whether the needs of the able non-specialist would in fact be better met by such courses is debatable. What is clear is that if the university had to frame its curricula to do justice not only to specialists and non-specialists but to a very wide range of academic ability, it would be difficult to maintain a structure of undergraduate courses based on specialized academic disciplines.

Implicit in what I have said is a much more fundamental question which I ought not to shirk: who should decide which external demands on the university should be met? Who should define them? And what is the nature of the contribution which the university by its very nature can make to meeting them?

The principle that universities should be responsive to the needs of society (in some sense or other of that very imprecise term) is not in question. Throughout their history, universities have been subject to many immediate pressures from the particular societies in which they exist—from political and religious movements, from the professions, from a wide variety of ideologies and causes, as well as from the state.

Throughout their history they have had to reconcile these immediate local pressures with their loyalty to their primary purpose—the pursuit of learning.

What is new about the present situation is that the state is now by far the most important source of external influence; because so many universities depend so heavily upon the state for finance, the state is in a strong position to induce the universities to accept its definition of social needs, the judgment of the public interest is now concentrated in a single institution to a much greater extent than in earlier times, and that institution one of exceptional power and influence.

And even in countries like my own, where universities enjoy an exceptionally great degree of freedom in deciding what subjects to teach and how to teach them, even in the countries where the autonomy of the universities is respected most punctiliously, we may expect increased pressure on the universities to encourage those activities "relevant to the national needs", to adapt their education to meet the needs of the economy for trained manpower, to produce what have been described as the "right courses at the right price".

In these circumstances there is some danger that society will lose sight of the distinctive competence of a university, which is to serve as a centre of learning and free inquiry, of civilization and culture, as a centre for the unfettered exchange of ideas, as a place where men can attempt to the best of their ability to discover and teach the truth.

If the university has to conform too narrowly to the views of what is important which happen to be fashionable or dominant at the moment, if it is induced to direct too many of its resources to meeting the immediate needs of society as these are interpreted by the state at a particular point of time—then we shall find that the ability of the university to perform its central function has been impaired and its capacity to produce creative and original work weakened. As a result, it will fail to make the contribution to meeting social needs which only the university can make.

Abridged text of the speech by Mr Habakkuk who is vice-chancellor of Oxford University to the opening plenary session of the IAU sixth quinquennial conference.

Sue Reid on Sussex University's admissions team

They have their entrances

The sign on the door reads "Please Enter". School leavers, mature students and the odd undergraduate drop-out all do so, each asking for the same thing—a place at Sussex University—and each needing the answer from Ted Nakhle, the admissions officer.

Behind an office desk in the campus administration block, Sussex House, he gives out some good news, and some frankly pessimistic, while deftly trying to help the hopefuls who have managed to miss out on the Universities' Central Council on Admissions' selection process altogether.

This year Sussex University made 1,760 conditional offers to potential arts and social science students. But with 760 places to be filled, and 300 of these already confirmed for people with the necessary A-level grades, the final intake figure has to rest around the 450 mark.

However, Mr Nakhle is quick to point out that in August, as his office reaches fever pitch, it is often a matter of trying to push the numbers up to target in the less popular subjects instead of pruning them down.

Sadly, on the science side, the low numbers are all too obvious. Sussex made 1,500 conditional offers this year and hopes to attract 475 new students at the start of term. But with A-level science results often under par and many school leavers totally unaware of the university's potential as a science centre it could be a matter of increasing the intake through the UCCA clearing scheme or falling short on students in some science subjects if the standards are too low.

The university is fiercely protective about its reputation in science. Mr Nakhle said: "School leavers tend to think of us as purely arts based but this is not true. We are very concerned at ignorance about science courses we offer."

In fact, Sussex is the only university in the country to offer neurobiology as an undergraduate course. It also has 450 postgraduate science students, more than 25 per cent of its science student population. Research fellowships for 1975-76 totul 114 and a year ago it ranked first in the country in terms of the total value of Science Research Council awards for physics, third in mathematics, fifth in the biological sciences and sixth in chemistry.

What is new about the present situation is that the state is now by far the most important source of external influence; because so many universities depend so heavily upon the state for finance, the state is in a strong position to induce the universities to accept its definition of social needs, the judgment of the public interest is now concentrated in a single institution to a much greater extent than in earlier times, and that institution one of exceptional power and influence.

And even in countries like my own, where universities enjoy an exceptionally great degree of freedom in deciding what subjects to teach and how to teach them, even in the countries where the autonomy of the universities is respected most punctiliously, we may expect increased pressure on the universities to encourage those activities "relevant to the national needs", to adapt their education to meet the needs of the economy for trained manpower, to produce what have been described as the "right courses at the right price".

In these circumstances there is some danger that society will lose sight of the distinctive competence of a university, which is to serve as a centre of learning and free inquiry, of civilization and culture, as a centre for the unfettered exchange of ideas, as a place where men can attempt to the best of their ability to discover and teach the truth.

If the university has to conform too narrowly to the views of what is important which happen to be fashionable or dominant at the moment, if it is induced to direct too many of its resources to meeting the immediate needs of society as these are interpreted by the state at a particular point of time—then we shall find that the ability of the university to perform its central function has been impaired and its capacity to produce creative and original work weakened. As a result, it will fail to make the contribution to meeting social needs which only the university can make.

his doorway. Some are simply impatient and want to know if they have won a university place before UCCA contacts them officially. Others have missed out the UCCA process and are hoping for an instant decision about a possible place.

Some of these surprise visitors are lucky, especially if they have good A-level grades and are interested in a course with vacancies. Only two weeks ago a hopeful student explained that he had reasonable A-level passes but had failed to complete a course in dentistry at Birmingham. After taking a year off he now hoped to read biological science. Could Mr Nakhle help him?

He was told his A level grades were suitable and would have been promised a place by Mr Nakhle immediately if he had not dropped out of one university course. However, Mr Nakhle sent him to the school selector for a talk, with every hope of him being admitted.

But it is hundreds of telephone calls which make life extremely difficult for Mr Nakhle and Miss Caroline Broadway, the assistant admissions officer. The calls, from parents and applicants, seek advice on poor A level results and information on every aspect of university life.

They have to be coped with even if the caller only asks: "How do I become an undergraduate?", the sort of question that is an appointment officer's nightmare in mid-August.

Meanwhile the paper work goes on. Mr Nakhle and Miss Broadway split the admissions work of the nine Sussex University schools between them and watch hundreds of forms in numerous filing trays slowly dwindle as the month goes on.

By the third week in August, after two weeks of unrelenting pressure from the first day of A-level results, the process is nearly complete. Subject numbers have been checked and cross-checked and it is time to turn to the UCCA clearing house scheme.

The school selectors work with Mr Nakhle to ascertain just how many students are needed in which subjects and together they fix the minimum A-level grades acceptable in each case. The clearing house system may have a juggling element about it but, according to Mr Nakhle, it has produced some outstanding students for Sussex.

Before the clearing house stage, a special effort is made by the admissions staff to consider each borderline case. Some are persuaded to change their choice of course and others are allowed in because of an outstanding school report or other mitigating circumstances.

One overseas applicant this year, hoping to study social science, failed his economics A level and gave rise to doubts about his literary ability. However, he succeeded in passing double maths with A grades and now Mr Nakhle has offered him a place on maths degree course with an economics subsidiary.

Unfortunately school reports can often play a part in the rejection of a borderline case. All too often they are just a few lines without any personal reference. This kind of report does not help the university or the candidate.



Kidnap hits animal research

The kidnapping of four white students from the research station in Tanzania run by Dr Jane Goodall has effectively ended some of the most important field research currently being done in animal behaviour.

Dr Goodall has returned several times to the site of the Gombe Stream Research Centre on the shores of Lake Tanzania, but always with an armed guard. She has gone only to retrieve the research materials there; research itself has been almost completely abandoned just when the first results of earlier work were beginning to be published.

The research at Gombe was primarily into chimpanzees, as well as into baboons and red colubus monkeys. It is a measure of the intensity of the work that some individual animals had been under continuous observation for up to 10 years. That continuity will now be lost, for the small team of five African researchers now there, also under armed guard, will be unable to maintain the previous levels of observation.

The four students, three American and one Dutch, were kidnapped on May 19 by guerrillas of the People's Revolutionary Party from Zaire, and the last was released six weeks ago.

Jane Goodall's work on chimpanzees at Gombe was originally sponsored by the anthropologist Louis Leakey. After she had started the collection of her data she became a graduate research student under Professor Robert Hinde of the subdepartment of animal behaviour at Cambridge University, and in 1968 published her doctorate as *The Behaviour of Free-Living Chimpanzees in the Gombe Stream Reserve*.

Since then she has written a few academic papers, but her main work has been in popular books of enormous importance in educating and awaking people's interest in problems of the conservation and behaviour of wild animals.

The achievement of Gombe, according to Robert Hinde, has been the creation of chances for research students to deal



with mother-infant relationships, sexual behaviour, group structure dominance, and the ecology of the area, much of which is just reaching publication. "Part of the scientific importance of Gombe", he said, "was that it was one of the very few reserves in which individual animals were followed over a long period. The greatest tragedy is that the continuity of the long-term data has been lost."

In recent years Gombe's main university connexion has been with Stanford and Professor David Hamburg who negotiated with the revolutionary group for the release of the kidnapped students, all of whom were Stanford undergraduates doing six months' "base-line" research as part of their courses in zoology or human biology. Now the Stanford connexion is virtually ended, partly because no students or researchers can go to Gombe again.

In the early days at Gombe, Jane Goodall saw no chimpanzees; they first came to the research station by accident and were later tempted there with bananas. "A grant of £3,000 to buy bananas was one of the most bizarre that I have ever requested", Professor Hinde said.

It was soon realized that bringing the chimpanzees to the researcher in this way distorted their social structure. The emphasis changed to observational field work, in which any interference with the natural behaviour of the animals was carefully avoided. Only when an animal was seriously ill did the researchers intervene.

In this field research, most of it in jungle conditions, African assistants were of immense importance. Field work was done in small groups of two or three after a lone researcher was killed several years ago.

The Africans, who had much valuable local knowledge, learnt rapidly and successfully scientific methods of recording observations that were previously unfamiliar to them. They became an indispensible part of the research effort. Margaretha Thorndahl, who was there for two years carrying out continuous observation of chimpanzee behaviour said that her work would have been impossible without their help.

An immense amount of work remains to be done on the material already gathered. So far it has primarily been used as background to those theses on particular topics that are reaching publication. Dr Goodall is still in Dar-es-Salaam, where she is professor of human biology, as she is at the university at Stanford, but hopes to continue with both preparing scientific papers from material gathered, and field work. However, the disturbance caused by the kidnappings has made it uncertain that she will return to work with the chimpanzees from which she made her reputation.

Alan Munton

University link welcomed by college teachers

Bingley College and Ilkley College have agreed to enter into a scheme of academic cooperation with the University of Bradford and have become associated colleges of the university. Senior staff of the colleges and the university have had extensive discussions as to the form of the association.

What is planned is a measure of cooperation formerly impossible due to the different status of university and colleges of education. The small size of the area, together with established contacts between the university and colleges—many of the staff have taken higher degrees at Bradford, in particular, the MSc in education—favour a degree of participation and discussion which may not be possible in large areas.

College teachers who took part in discussion about courses have commented how valuable it is to be able to talk to members of the university.

Since the university's School of Educational Studies was solely postgraduate until 1974—when it added a part-time evening course leading to a BSc in applied educational studies—there is little overlap with education courses in the colleges.

Some cooperation has already been established by inviting specialists in the colleges, in psychology and sociology to lecture for the university B.Sc. in applied educational studies. On the university side, advice and assistance will be given with a course in research in education. At least two visits to schools of the university are considering integrated or combined courses in which education, taught in the colleges, will play a major role.

Complementary to the university's M.Sc. and B.Sc. degrees in education, which give a rather greater emphasis to theoretical studies (psychology, sociology, social psychology and research methods, and various options for B.Sc. students), Ilkley do now offering a part-time B.Ed. course which has a somewhat more practical orientation. This has drawn more than 100 inquiries within a few days of the first advertisement appearing.

The scheme began even before the university was approached as a validating body and, although their courses differ essentially in many respects, there is some provision for transfer at different stages. It is hoped that this will develop also with the university and other institutions.

The courses follow the now familiar national pattern. Those offered in the associated colleges include the DipHE which requires two A levels at entry.

The colleges are offering a diversity of BA and some BSc courses. The Certificate of Education course continues for those students who have not obtained two A levels, but those who perform outstandingly well in the first two years will be offered opportunity to continue the BA, BSc, BEd ordinary, or BEd honours degree. Students entering with the intention of taking a degree will be free to transfer to the certificate course or to leave with a diploma, should they wish to do so.

Staff are already beginning to think of their activities in a wider educational context. In September a regional conference will be held on the subject of the middle schools. This has been planned by an informal regional working party.

Like the working party, conference members represent all interests.

It should give teachers and students of the college and university schools of education a better insight into the problems of the middle schools and enable them to set up some research with the aid of teachers who can still spare the energy and time for it.

Ruth M. Beard, Barbara M. Mayer, W. Ray Stirling

Professor Ruth Beard is chairman of the Postgraduate School of Studies in Research in Education at Bradford University. Miss Barbara M. Mayer is principal of Ilkley College of Education, and Mr W.

VAN NOSTRAND REINHOLD

Mechanics of Fluids
B. S. MASSEY *3RD EDITION*
This thoroughly revised edition of Dr Massey's comprehensive general text on fluid mechanics offers a complete honours degree course for students of civil and mechanical engineering.
£7.50 *442 30021 2 cloth*
£3.95 *442 30137 5 paper*

Dynamics W. E. WILLIAMS
This latest volume in *The New Mathematics Library* offers an introduction to the general principles of the equations of motion, and also examines one dimensional particle motion and more general motions including the theory of central orbits.
£8.95 *442 30027 1 cloth*
£2.95 *442 30048 8 paper*

Matrices for Scientists and Engineers
W. W. BELL
Presents the basic theory of matrices and determinants designed for undergraduates of science and engineering, and by postgraduates in pure and applied mathematics learning the subject for the first time.
£7.95 *442 30081 8 cloth*
£3.95 *442 30082 4 paper*

An Introduction to Electromagnetic Fields
R. L. FERRARI
An introductory text for students of engineering and physics, expounded in a completely logical fashion but at an elementary level, based on the author's teaching at Cambridge on electromagnetic fields.
£7.00 *442 30084 2 cloth*
£3.95 *442 30093 6 paper*

Optics and its Uses
G. F. LOTHIAN
A concise undergraduate course in optics based on the author's teaching at Exeter, emphasising the practical aspects of the subject to enable students to make full use of equipment in academic and industrial laboratories.
£7.50 *442 30092 6 cloth*
£3.95 *442 30059 9 paper*

Nonlinear Control Engineering
D. P. ATHERTON
A unified treatment of describing functions in analysis and design of nonlinear systems for graduate courses in electrical engineering, and a valuable reference book for engineers in industry.
£10.50 *442 30017 4*

Van Nostrand Reinhold
Molly Millars Lane

A philosophy for the polytechnics

Sir Alex Smith addresses the Conference of Principals of Colleges of Advanced Education, in Canberra

There is one statement in the White Paper of 1966 entitled *A Plan for Polytechnics and Other Colleges* that has received surprisingly little attention, until yet, if we take it at its face value, it is the most telling. It says: "The Government believe that the best results will be achieved by developing higher education on polytechnic lines wherever practicable."

That exactly what it says. The best results will be achieved by developing higher education not on university lines, or any other kind of lines, but on polytechnic lines wherever practicable.

So the Government declared its belief. I believe it too. That, in a nutshell, is my polytechnic perspective. If I may enter here a personal remark, that statement had a considerable influence in my own decision to change from industry to higher education. I believed it—and I still do.

Following the 1966 White Paper, ministerial statements from both Governments, Labour and Conservative, gave strong support to the polytechnic policy. Then we had the 1972 White Paper, *Education: A Framework for Expansion*, in which the section on polytechnics and other further education colleges said: "The Government will look to the local education authorities and the governing bodies and staffs of the polytechnics to ensure that they can play the key role in this expansion. They have been impressed by the speed and vigour with which these new institutions have assumed and pursued their innovative task." And so they ought to be.

The summary then of the assignment given to the polytechnics, by Government, is that they shall develop higher education along polytechnic lines, that they shall produce thereby the best results in higher education, and that they shall play the key role in the expansion throughout the 1970s. It is a huge assignment, in its nature, in its high aims, and in its size.

It was with the introduction of the polytechnic policy in 1966, that the then Secretary of State for Education and Science, Mr Crosland, introduced the phrase, the binary system.

Around the phrase "the binary policy" there always seems to have pejorative connotations, and there has been much clamour to the effect that "we must wipe out this nonsense of the binary policy": but must we?

The first point to be made about the binary system is that it exists; it is not new; it was not suddenly invented by Mr Crosland in 1965. The development of higher education in the public sector has been going on for over 100 years, and many of the constituent colleges from which the polytechnics were formed have much longer histories than many universities.

Major shift in higher education policy

The second point is that the 1966 White Paper ushered in a major shift in higher education policy. Before then there was a general acceptance of the notion of a ladder of institutional progress, in which the better local authority colleges aspired to become universities, as happened to the colleges of advanced technology; and the transfer to the university sector was accompanied by a discarding of lower level work and part-time forms of education. What the 1966 White Paper did was to initiate the development of a group of institutions in the public sector which were no longer aspirant universities but institutions on a par with them, and inevitably such a shift in policy drew the fire of impassioned criticism.

The polytechnic policy is rooted in 100 years of development of higher education in the local authority sector in England and Wales, and the policy shift initiated in 1966 meant that there was to be no more drift, no more transfer of the best local authority institutions to the university sector leaving the local authority sector deprived and impoverished. On the contrary, these colleges were to be encouraged to develop to the full their own traditions as professional and vocational institutions.

Drive towards excellence is confused

So what is the binary system? A system of superior and inferior, of rich and poor?

There is certainly something of the latter in it. If you look at the amount of building provision for higher education in our country throughout the whole of the decade 1960-1970, and compare the amount given to the university sector with that given to the local authority further education sector, it turns out that nearly three times as much was spent in providing a place for a university student as was spent for providing a place for his colleague in the further education sector. I acknowledge that the universities have special requirements —for example, for medical teaching and for research—but a factor of nearly three is surely far too much.

Is the binary system just two different systems of administration and control, but with no difference in educational purpose? If it is, I could not defend it, and would not want to.

I think that it is something more fundamental. University work in our country has a superb record of achievement in the establishment of excellence in understanding, in analysis, in the acquisition of knowledge, and in the developing of scholarship. It is their role, their pre-eminent contribution to our society. But, in recent decades, this drive towards excellence in scholarship has become confused with another drive, the drive towards expansion, and the expansion has attempted what many deem to be very undesirable—by and large it is to do more and more of the same pattern of education, plus a steady extension into the vocational and professional spheres more appropriately associated with the further education sector, and for which the university system is not well-suited.

The university model gives pride of place to intellectual excellence, but it is weakened and distorted when it is diluted and when it tries to do something for which it is unsuited, by background, experience and ethos. The pre-eminence given to this model of higher education has two very damaging effects in our society. First it generates a hierarchy of esteem in which other very legitimate and praiseworthy educational aims are deemed to be less significant. Secondly it generates a similarly misguided hierarchy of esteem in which human activities are graded—arts is reckoned superior to science, science superior to applied science, applied science superior to technology, technology superior to engineering, design engineering superior to production engineering.

The university model has other implications. It leads to knowledge being separated into suitable subject areas—history, philosophy, mathematics, physics, chemistry, and so on—and these are studied in great depth in departments comparatively isolated from the interaction of other subject areas. It is a very sensible technique for reducing the degrees of freedom.

And so our young people are educated in the mould of potential scholars. That may be right—it probably is right—for two or three per cent of each age group, but for 10 per cent, 20 per cent?

In the real world it is not so easy to reduce the degrees of freedom, and most young people who complete their higher education have to go out and work in a world in which decision-making does not have that artificial simplification. Instead they will have to draw together the inputs from a number of different disciplines and then make judgments.

My own background gave me a clear understanding of that difference and generated in me a very deep conviction about the worthwhileness of what we are trying to do. Working in the context of high quality engineering, my initial efforts were rooted in my education. I tackled problems as a mathematician; with an equation or two, a boundary condition or two; a solution or two, I was on familiar ground, but I slowly, steadily learnt that the real essence of good design calls for much more and likes as much in the realms of aesthetics and of judgment as it does in the realms of analysis and validation.

I did not realize it at the time, but I was steadily changing from being a university graduate into a polytechnician. I realized that, although I had a very good degree in mathematics and physics, it was in fact a narrow vocational training as a mathematics technician, for a future in mathematics scholarship, and I was not very well equipped, not very well educated, for the role that I was in and the career that I was developing. I would like to add, too, that during that phase in my career I learnt the great value of the higher technician, of the man who has the will and the skill to attend the local technical college after work. I reckon that it was men like these, not men with degrees, who were the backbone of our industrial development.

There are two educational characteristics which I claim to distinguish the polytechnics. One is that we welcome three groups of students—those taking degree courses, those taking other qualifications, and those who study on a part-time basis. This is a very important characteristic. In our country at present there are many empty places in science and technology in the universities, and there are some empty places in the polytechnics. It is an easy argument, on that basis, that polytechnics should not do degree work in science and technology and that such students should go to the universities. But it is a very wrong argument for the basic reason that the education of higher technicians and part-time students benefits enormously from co-existence with education of degree students, and any moves to rationalize the present over-provision should be such as to enhance, and not to diminish, the quality of education we give to these very valuable members of the community.

The other characteristic of polytechnic education is that, whereas the universities stand properly for excellence in intellectual understanding, excellent in scholarship, our aim is to achieve that complementary excellence in—in what?—in what I have been talking about. But there isn't a simple word for it, like scholarship. It is design, it is action, it is synthesis, it is professionalism, it is the application of knowledge, it is in making intuitive and imaginative judgments, and in drawing together the efforts of people in a number of disciplines. That makes me a polytechnician, and I see myself firmly as one of that new strain of educators.

This begins to clarify some key qualitative differences. We should have different criteria for the appointment of staff, and different criteria for the development of staff. In the university sector, staff development takes the form of encouragement to conduct research and to publish papers. In our sector, the comparable form of staff development should be encouragement to go out and work for a period in industry or the professions, a kind of sandwich course for staff, so that their teaching would be refreshed and enriched by experience of decision-making which is not artificially resolved into academic disciplines.

I find this approach much more satisfactory and positive than the rather negative approach in official statements to the effect that polytechnics should not do research but should be teaching institutions.

The emphasis on application of knowledge has an important bearing on the way we run our institutions. Another difference that I have not had time to develop here is that we have degree validation through a central body—CNAA. It is steadily being recognized how significant an innovation this was in education, and I can confidently see the possibility that, by the 1980s, employers may well be beginning to say: "The kind of person we are looking for is more likely to have a CNAA degree."

As I see it then, the advent of the polytechnics is a profound and imaginative and much-needed shift in higher education policy, more profound and imaginative than many people yet realize. We are only five years old, we are very much at the beginning of an evolutionary process, and this shift in educational policy is therefore a somewhat tender plant. Because this is so, there are still plenty of pressures to eliminate that shift, pressures from staff who still think in terms of the old prestige ladder for institutions, pressures even from CNAA, where the requirements for degrees to be equivalent to university degrees, and so they often look for evidence of university-type research.

In my view, this shift of policy is more likely to be able to resist and survive these pressures if our institutions are administered through a system which is quite separate from the university system.

It is an exciting educational development of far-reaching potential, and I am very proud to be so much a part of it, so much involved.



"Our aim is to achieve complementary excellence in ... design, action, synthesis, professionalism, the application of knowledge"

Task for a new strain of educators

I do believe, however, that we need a binary system of institutions—perhaps a bimodal distribution of institutions would be a better description—in which, alongside those whose rightful claim is intellectual excellence, there are those which are in no way inferior, and which are distinguished by the characteristics I have outlined. Our society has been richly provided with the former for generations, for centuries even; its great need now is for success with the latter.

It is a task for a new strain of educators who understand, and believe in, and are committed to this concept of education. If I may personalize it again, for example, I do not have a list as long as my arm of scholarly academic research publications, which is the normal requirement for advancement in the university sector. But I do have a record as long as my arm of involvement in applying knowledge,

Enrolments at Britain's polytechnics

	Full-time	Sandwich	Part-time Day	Part-time Evening	Total
Higher degree or Higher Dip AD	1,404	44	1,254	419	3,161
First degree, Dip AD or degree equivalent	30,730	19,461	11,874	6,312	68,377
HNC or HND and other courses	17,798	7,386	34,695	22,002	81,881
Total	49,932	26,891	47,863	28,733	

Subject grouping	Percentage of all full-time and sandwich course enrolments in 1973/74
Engineering and technology	22
Pure and applied science	12
Ancillary health subjects	3
Social, administrative & business studies	33
Education	4.5
Music, drama and visual arts	10
Other professional and vocational courses	11

Sir Alex Smith is chairman of the Commission of Directors of Colleges of Advanced Education in Australia.

Joan Brickhill outlines the background to recent moves against black student leaders in South Africa

Students who face a trial of ideas rather than actions

Last month's detention of leaders of the National Union of South African Students (NUSAS) has drawn attention once again to the plight of students in South Africa, where 11 black students leaders are already on trial under the Terrorism Act.

The 11 men are all members of the Black South African Students' Organization, and if convicted they face a minimum sentence of five years' imprisonment and a maximum of the death penalty.

A conviction under this Act is almost inevitable since the terms are so wide. The charges range from representing the whites as inhuman oppressors of the blacks, to conspiring to transform the state by unconstitutional, revolutionary or violent means.

The trial has been called a trial of ideas rather than actions, for the 11-page charge sheet is backed up with over 90 pages of poems, pamphlets, extracts from plays and minutes of meetings, in all of which the common theme is black consciousness. Indeed, it is the black consciousness movement—the movement which started in South Africa in 1969 with the formation of SASO—which is on trial.

Black students first broke away from the multiracial NUSAS and the University Christian Movement to form their own union because, they claimed, "a time had come when blacks had to formulate their own thinking unpolluted by ideas emanating from a group which had lots of stake in the status quo".

Ironically, this development was initially welcomed by Afrikaner Nationalists as an endorsement of apartheid. But it soon became clear that SASO's philosophy—black consciousness to unite the "coloured, Indian and African" groups, with the stated aim of "liberation of blacks from the system"—presented perhaps the most potent new threat to white supremacy, to apartheid and in particular the Bantustan system.

Opposition mounted to the inferior and segregated education imposed on black universities by whites. The Government blamed SASO for the frequent disturbances which usually led to police intervention, mass expulsions and walkouts, and the closure of the colleges. SASO was banned on most black campuses.

In reply SASO diversified its activities, operating among students from off-campus branches, as well as helping establish and nurture sister organizations such as the Black People's Convention, the Union of Black Journalists, and theatre, youth, labour and Church groups.

Imprisonment of some members and the banning of successive groups of leaders did not prevent new leaders coming forward. Subsequently two of their men died because of "the system", as SASO euphemistically put it, one by a parcel bomb, another pushed under the wheels of an oncoming train.

Although the latest wave of detentions immediately followed banned pro-Frelimo rallies allegedly organized by SASO and BPC last September, the fact that the charges cover the period December 1968 to October 1974 show that the rallies merely provided the issue the Government had been waiting for to start its all-out attempt to crush SASO.

Fear in white South Africa had contrasted with fresh hope and jubilation in black South Africa as September 25 drew near—the day the Portuguese would hand over power in Mozambique to a transitional government dominated by Frelimo (Front for the Liberation of Mocambique) after a 10-year colonial war.

It was reported that Frelimo representatives would address solidarity rallies in South Africa on that day, and the government announced a month-long ban on all SASO and BPC meetings "in the interests of public peace."

In defiance of the ban—and despite the presence of over 300 riot police, some with sten guns and, others with dogs—thousands of people gathered outside the gates of a Durban stadium, singing freedom songs and chanting "viva Frelimo!".

After about an hour the police ordered the crowd to disperse, but as they turned and headed down the road away from the gates of the stadium, dogs were set loose and policemen baton-charged the demonstrators.

Hundreds were injured because a high embankment blocked their escape. Some of those who risked going to hospital that evening were arrested in hospital queues, while 13 were arrested during the struggle. Eventually 19 people were charged under the Riotous Assemblies Act and released on bail to be tried later this year.

Meanwhile another large rally at Turfloop University had also been violently broken up by police. The local students' union president and the SASO president were among those detained at the rallies and in subsequent raids throughout the country.

On October 16 1,400 Turfloop students marched on the nearby police station to demand the release of their president. In response the police detained the local SASO chairman.

An eight-day sit-in strike followed in the university hall, while white staff armed themselves and patrolled the campus, keeping in constant radio contact with the police. Eventually an amnesty was offered to the striking students and the university closed down before the end of term.

It is thought at least 50 young blacks were detained under the Terrorism Act, which allows for indefinite detention in solitary confinement without access to lawyers, family or friends. After 10 months at least 22 are still in detention without having been charged.

In February 13 men were charged under the Terrorism Act, but in June charges were dropped against two of them, and another two will be tried separately from the other nine awaiting trial.

In November 1974 an urgent application was brought before the Pretoria Supreme Court for an order to restrain the security police from assaulting the detainees. It was turned down on the grounds that the court had no power to make such an order under the Act.

Meanwhile defence lawyers have continued to allege that the men are being tortured, and by now many of the detainees have been "persuaded" to give evidence against their friends. Some have been released on bail on condition they act as state witnesses.

The events of the past 10 months have not broken the spirit of those in prison or in the movement outside. At court appearances the accused stand defiantly, dressed in black, giving black power salutes to the packed public gallery who join them in singing freedom songs. The most common song is *Asikhathali*—"We don't care. All we want is freedom".

In July the seventh general students' council was held "to prove that SASO is indestructible". Only one of the five-man executive was present—the others are in prison. About 60 members of the black consciousness movement are believed to have escaped to Botswana.

Despite everything delegates from most SASO branches and centres who attended the conference, which confirmed the continued commitment to SASO's previous direction and aims, with resolutions rejecting the Government's Bantustan policy and its détente exercise.

Action against SASO has continued. In February the organization was banned from the last African campus, Turfloop, by the white-controlled council of the university.

In response SASO issued a press statement claiming: "What the rector and the council do not tell the black community is that all the separate development university authorities long ago declared war against SASO, and have already refused to readmit many students, not on academic grounds but because they happen to be members of SASO local committees on their campuses." It appears that even relatives of certain SASO members have been refused admission.

Typical of threats to the continued existence of SASO were the remarks of the Deputy Minister of Bantu Education in the Senate on June 12. The government would train the blacks, he said, but not to be destroyers of the way of life in South Africa.

Warning that there were tendencies among black students to follow militant leaders, he appealed to the Opposition to help the government so that "these actions of SASO" could be nipped in the bud.

Opposition to white domination, especially in education, has become increasingly widespread and militant, not only in universities but in colleges and schools. The white authorities are reacting swiftly and severely, as can be seen from two particular cases.

In March the Wilberforce Teachers' Training College for Africans was closed down by police armed with sten guns and automatic rifles after students refused to leave the assembly hall for classes. They were protesting against the actions of a white inspector who arrived at the college with a police escort and an African inspector, and announced that the inspector would replace the popular principal who was on sick leave.

At the start of the new term in July at the University of Natal Black Medical School, the white council closed the residence and gave the 270 students 24 hours to leave after a dispute involving meal tickets.

It seems likely that eventually the government will resort to banning SASO like many organizations before it, since no amount of repression seems able to destroy the organization.

However, a ban is unlikely to put an end to the growing disquiet on black campuses, for those involved point out that it is the system itself, not SASO, which is the cause of the discontent; SASO has merely been a very effective expression of the frustrated aspirations of black youth.



Demonstrators are beaten by police in Johannesburg during a protest over action taken against students.

More than just fitting square pegs to square holes

Bill Kirkman discusses the changing role of university appointments services

In 1965 I attended, in Edinburgh, my first conference of university appointments officers. Next week the present director of the Edinburgh University Service will be presiding over the biennial conference of the Standing Conference of University Appointments Services (SCUAS) in Swansea.

In the 10 years between these two conferences, there have been a number of fundamental changes in the appointments board world. One symptom of the changes is that it no longer seems appropriate to use the term "appointments board", though it would have passed without comment in 1965.

Most services now emphasize not the simple "placement" function but the careers advisory role which they have to fulfil. Most of us would now recognize that our job is not so much to fit square graduates into suitably square holes, but to help people make sensible decisions about themselves and their futures.

Such decisions are obviously often about the occupations they wish to take up, but that is incidental in the sense that the real problem is frequently to make a decision about the unknown.

One of the most obvious changes is simply that of size. The 1965 conference turned out to be the last occasion on which a purely informal meeting took place every other year.

Two years later, SCUAS was formed, the change to a more formal association reflecting the fact that for the first time at Edinburgh the number of people involved had exceeded 100. Now, our fraternity numbers something around 300 and it includes careers advisers in the polytechnics as well as the universities.

SCUAS was probably the first major bridge between the two sectors of higher education. Bridge-building went further with the creation in 1972 of the Central Services Unit, sited in Manchester. This unit, long discussed and mooted already by the late Lord Hoyvorth in his report on University Appointments Services in 1964, was set up to serve the universities.

When it had become firmly established, the Committee of Vice-Chancellors and Principals readily widened its scope to enable it to bring in the polytechnic careers and appointments services. It is now an essential part of the careers advisory scene, and looking back, one wonders how we managed without it.

Information sheets are written by the staffs of different services for the body as a whole. There are committees dealing with audio-visual aids, and with the collection of first destination statistics.

Efforts to widen the range of opportunities open to graduates have been made collectively. Liaison with schools, so that those entering higher education have a realistic view of what it may lead to, has been carried out as a joint exercise.

One of the most significant developments has been growth of full and friendly contact with employers. Clearly, a large part of the "stock in trade" of the appointments service has always been the fact that they were closely in touch with employers and their needs.

Personal contact, between individual employers and the staffs of individual services, remains of crucial importance. In 1968, however, a group of major employers of graduates attended a conference organized in Durham by SCUAS, at which it was decided to form a similar body, the Standing Conference of Employers of Graduates.

SCOEG has itself developed, and is now firmly established as a meeting ground on which the common problems of recruiters (and they exist even between those who are competing for the same people) can be tackled.

It is symptomatic of the close collaboration between SCUAS and SCOEG that, whereas in the past representatives of each body have attended the conference of the other, this year the Swansea gathering is a joint event.

The past 10 years, in short, have seen a growth in numbers, a great increase in collaboration between services, and between the services on the one hand and employers on the other, and the development of more formal machinery for co-operation which, nevertheless retains many of the advantages of informality.

This has been possible because, in spite of the growth, we are still a pretty small group most of whom know each other quite well.

Over the past 10 years, there seems to have been a parallel, and even more significant change in our own attitudes to our job.

When I started this work, only a slight caricature of the situation which then existed would produce a spectrum of attitudes ranging from the "extreme" counselling approach (which was rare) to the "good solid placement" approach which most of us accepted as the natural order of things. People wanted jobs. We knew about jobs. People therefore came to see us.

The counselling approach was to some extent oversold, but many of those who were misturned felt, in fact, if we were honest, that there was more in it than we would admit, and more to be criticized in our own attitudes.

The formation of the CSU was not, of course, the first attempt at collaborative effort. Indeed the success of SCUAS has been largely due to the fact that it has provided a vehicle for cooperation between services in many different fields.

In recent years, this wariness—and even in some cases hostility—has largely gone. We have become much more confident in our own work and much more ready to accept generally that our task is, and should be, much more complicated than simply knowing and telling people about occupations.

Occupational knowledge and experience was always—and still is—the main strength of the university careers services. Weaknesses on the counselling side have, however, been recognized.

Most of us are now well aware that decisions about what to do with one's life after completing full time higher education are not simply a matter of understanding about the huge range of occupations which is available.

There are obvious dangers in going too far the other way. Again to turn to caricature, in the past the sceptics tended to feel that the job of the counsellor was to turn people who knew what they wanted to do into people with grave doubts.

It is clearly important to recognize that someone who has decided that, for example, he wants to be a chartered accountant and is seeking information about how to go about it, probably actually does want what he says he wants.

As a body, SCUAS has become heavily involved in the continuing widespread public discussion of graduates and what happens to them. We are able to produce facts about where graduates have gone.

With the help of the Central Services Unit, we are able to provide a pretty accurate picture of the current state of demand. We are increasingly playing a consultancy role, advising employers, particularly those new to the field, how to set about recruiting graduates.

The author is secretary of Cambridge University Careers Advisory Service.

George Morgan reports on plans for a massive research complex in the south of France

Science city in the sun begins to take shape

NICE

Summer visitors to the French Riviera this year will find an unfamiliar name among the sign-posts which clutter cross-roads and junctions between Nice and Cannes. Alongside Antibes and Biot, Mougins and Vallauris, bold new signs point the way to Sophia Antipolis, "science city in the sun" and the French planners' most recent experiment in modern living and learning.

The name tells its own tale: *sophia* from the Greek word for wisdom, and *antipolis* the graeco-roman name for Antibes. Prompted by similar ventures at Palo Alto, California, and Akademgoron, USSR, it is a high-density complex designed to cater for research and high-technology industry. Launched in 1969, the key words have been cross-fertilization and pluridisciplinarity. When the city is completed in 1977, top academics and experienced industrial technologists from Europe and America should be meeting regularly in the informal surroundings.

Originally intended to occupy a 860-acre site, Sophia has now become the nucleus of a vast 6,000-acre project—the Valbonne Plateau Industrial and Scientific complex. The enlarged scheme got off to a flying start in March this year when M Poniatowski, Minister of the Interior, laid the foundation stone for an £18m building to house the central computer reservation system for Air France. The Valbonne complex is expected to be completed in the early 1980s.

The site chosen for the new "scientific city" is a vast 25,000-acre stretch of undulating pine-clad hills between the Mediterranean and the last folds of the Alps. All building in the area has been frozen and a vast replanting operation is under way to provide vegetation for hillsides which have been victims of forest fires. Careful planning will add artificial lakes—and try to fit buildings into the landscape.

One of the pet ideas of M Pierre Laffitte, director of the *Ecole des Mines* in Paris and instigator of the Sophia operation, is to build a community centre similar to the *agora* in the cities of ancient Greece. Situated at the centre of the research park the *agora* will resemble an old *provençal* village—but with all the technical and social amenities required in a modern industrial complex. It will contain cinemas, a theatre, restaurants and an exhibition centre, and will be the entertainment centre for the 30,000 researchers and industrial workers who will one day work there.

But Sophia is not intended to be a new town, nor a glorified university campus. Housing will be provided for fewer than half of the working population and most researchers and students will come in from Nice and Cannes just a few minutes away along the motorway. The aim is to avoid making it an academic ghetto and to integrate the research park into the social and economic activity of the region.

Official backing for the project has been enthusiastic and several government departments have commissioned land. The *Ecole de Mines*, the top engineering school in Paris, is to transfer part of its activities and some research laboratories to a new 27-acre site. The University of Nice will also move in laboratories and 150 research workers, and plans to set up a management information institute. The Telecommunications School will have its new headquarters only a few yards away through the trees and the two of them will provide a centre for computer technology and applications. The CNRS, France's £200m a year central agency for fundamental research, is also moving ; next year it will open new laboratories for an estimated 200 research workers in a variety of science and arts subjects.

Local business and academic circles have also been keen on the scheme. The Nice Chamber of Commerce will supervise work on the Valbonne Plateau Scheme, and is about to be given responsibility for Sophia Antipolis as well.

They will also occupy 25 acres, some of which will be reserved for the Nice Graduate School of Commerce, which is due to open in 1977. One of 17 *grandes écoles* in France, it specializes in business and management studies.

India

Indian courses in education 'lack direction'

from A. S. Abraham

BOMBAY

Both BEd and MEd courses in Indian universities lack direction, according to a 10-member expert panel of the University Grants Commission, headed by the director of the National Council for Applied Economic Research.

"The existing postgraduate courses", says the panel, "are neither closely linked with the professional needs of teachers, nor do they have the depth and intensity necessary for the study of education as an academic discipline". The BEd courses are ineffective and aimless; the MEd courses "have grown merely as an extension of the BEd courses".

The panel suggests that the UGC finance "a comprehensive study of the objectives and orientation" of the first-degree course in education and publish a monograph on different aspects of teacher education. This should be circulated among colleges of education who can then make specific remedial proposals.

The panel proposes an intermediary degree course of MA(Education).

Mexico

National university spreads its wings

The National University of Mexico, faced with the problem of a mushrooming student body, has started to decentralize with new buildings in the suburbs of Mexico City.

The decentralization process began in 1973. But the main campus at University City, to the south of the capital, still hast a student population of over 200,000—all but 50,000 of those enrolled at the university.

Two new schools for professional studies are to be built in September, planned for the winter term of January, 1976. One branch will be at the huge San Juan de Aragon housing complex in north-eastern Mexico City, and the other on Calzoda Zaragozo, near the Puebla highway.

American news

Enrolments reach all-time record despite cash crises

from Israel Cinman

WASHINGTON

Despite stresses in national, institutional, and personal economies, there are signs that the beginning of the new academic year will find more students than ever before on America's college and university campuses.

Advance indications that college enrolments generally will increase this autumn include:

● The latest projection by the United States Office of Education's National Center for Education Statistics, estimating that autumn enrolment will increase nearly 4 per cent over last year;

● A survey of 66 women's colleges, indicating that after two consecutive years of declining enrolment they will have a 3 per cent increase;

● A survey of 600 private colleges, a majority of which reported that applications were ahead of last year;

● A telephone survey of 17 members of the American Association of State Colleges and Universities which found that none expected declines in enrolment and eight expected significant increases.

One of the most commonly offered explanations for enrolment increases is that when jobs are hard to find, further education is seen not only as an alternative to idleness but as a means of improving people's chances of getting good jobs later.

Supporting that view, a newly reported survey by the United States Department of Labour showed that persons with at least four years of college had an unemployment rate only one-third as great as the national average.

While inflation has increased the cost of going to college, in many cases there has been a substantial reduction in the largest cost: what economists call "forgone earnings", the amount a student would have earned if he were not in college.

The National Centre for Education Statistics is projecting total college enrolment this autumn, for degree and non-degree students, part-time and full-time, at 10,619,000—an increase of 395,000 over last year's reported total.

About two-thirds of the additional students this autumn are expected to be enrolled on a part-time basis.

Counting only those working towards a degree, the enrolment projected is 9,328,000—an increase of 3.4 per cent over last year's 9,023,446.

Of the projected degree-credit students, 5,956,000 are expected to be full-time. About 594,000 of the projected 1,291,000 non-degree students are expected to be enrolled on a full-time basis.

These are the national center's latest projections, based on past trends and changes in college-age population groups.

The projection of a 3.9 per cent increase in total enrolment this autumn compares with a reported increase of 5.5 per cent last year, which was larger than had generally been expected. A year ago, the National Center for Education Statistics was projecting an increase of only 1.3 per cent.

Projections made by the center do not take into account the influence of economic factors, such as unemployment and inflation. Making projections of college enrolment has its uncertainties but is easier than trying to predict what the economy is going to do, an official at the center said.

The Women's College Coalition, representing 71 institutions, reported enrolment increases in all sectors of its membership. The average increase for the 66 women's colleges that provided data was 3 per cent for full-time students and 5 per cent for part-time students, compared with last year.

The reported increase follows declines of 1.6 per cent in the autumn of 1973 and a fraction of a percentage point in 1974.

The enrolment increases at the women's colleges were not evenly distributed. The coalition said 35 of the reporting colleges indicated enrolment increases this autumn, 17 reported enrolments about the same as last year's, and the other 14 indicated smaller enrolments.

Among the women's colleges reporting smaller enrolments, half said they would have at least 3 per cent fewer students this autumn.

Nine of the women's institutions reported that they were not seeking increased enrolment because they already were at their optimum capacity.

Chronicle of Higher Education.

Open University programmes September 6 to 12

Saturday September 6

BBC 2

7.40* Ecology: Flevoland Polders: A Managed Succession (S323; prog 12).
8.05* Arts Foundation Course: Isambard Kingdom Brunel (A100; prog 29).
8.30* Mathematics Foundation Course: Error Correcting Codes (M100; prog 25).
8.55 The Early Roman Empire and the Rise of Christianity: Religions of the Empire (A291; prog 7).
9.20 International Politics and Foreign Policy: Settlement or Resolution—The Golan Heights (D332; prog 7).
9.45 The Age of Revolutions: The Festival of the Supreme Being (A202; prog 14).
10.10 Topics in Pure Mathematics: Compactness (M202; prog 28).
10.35 Elementary Mathematics for Science and Technology: Linear First Order Equations (MST281; prog 14).
11.00 Geochemistry: Geochemical History of the Earth (S2-2; prog 3).
11.25 Environment: Rivers (S2-3; prog 3).
11.50 Quantum Theory and Atomic Structure: Shapes and Angular Momenta in Atoms (SM351; prog 9).
12.15 War and Society: The Impact of the 2nd World War on Indonesian Nationalism (A301; prog 14).
12.40 Great Britain 1750-1950: Sources & Historiography: Images of the Working Class (A401; prog 11).
13.05 Renaissance and Reformation: Ignatius Loyola and his Society (A201; prog 14).
13.30* Statistics: The t-Distribution (MDT241; prog 9).

RADIO 3 (VHF)

6.00* An Algorithmic Approach to Computing: What Makes a Good Program? (M251; prog 8).
6.20* Historical Data and the Social Sciences: The Small Household (D301; prog 4).
6.40* Computing and Computers: Systems Analysis and Design (PM951; prog 4).
7.00* Methods of Educational Enquiry: An Empirical Approach: Experiment (E341; prog 10).
7.20* Statistics: Measurement Errors and Integrating (MDT241; prog 7).
7.40* The Nineteenth Century Novel and its Legacy: Looking Back on the 19th Century Novel (A302; prog 14).

RADIO 4 (VHF)
(Excluding North Scotland and Parts of Wales)

9.05 Open Forum.
9.25 Complex Analysis: Laplace Transforms (M332; prog 7).
9.45* Science Foundation Course: Life on Earth: Is it Unique? (S100; prog 32).
10.10* Arts Foundation Course: Life in a Railway Factory (A100; prog 27).
10.30* Mathematics Foundation Course: Linear Algebra II (M100; prog 25).
11.00 Renaissance and Reformation: English Nationalism at the Time of the Renaissance (A201; prog 28).
11.20 The Curriculum: Context, Design and Development: Brachead—To Kill with Kindness: Part II (E283; prog 14).
11.40 The Early Roman Empire and the Rise of Christianity: Pagan Mysteries and Christian Passover (A291; prog 14).
14.00 Decision Making in Britain: Foreign and Commonwealth Office: Information Flows (D203; prog 28).
14.20 The Digital Computer: Mock T.M.A. No. 4 (TM221; prog 14).
14.40 Making Sense of Society: Two Explanations (D101; prog 26).
15.00 The Age of Revolutions: Stendhal and Romanticism (A202; prog 28).
15.20 Regional Analysis and Development: Regional Planning in a Developing Country (D342; prog 10).
15.40* History of Architecture and Design 1890-1939: Frank Pick (A305; prog 25).
16.00* National Income and Economic Policy: The 1975 Budget (D284; prog 14).
16.20* Second level Science: Experimental Approaches to Amnesia (S2-Biol; prog 10).
16.40* Language and Learning: Disadvantage (E262; prog 13).

RADIO 3 (VHF)
Additional programmes for North Scotland and Parts of Wales)

24.00* Renaissance and Reformation: English Nationalism at the Time of the Renaissance (A201; prog 28).
0020* The Age of Revolutions: Stendhal and Romanticism (A202; prog 28).
00.40* The Early Roman Empire and the Rise of Christianity: Pagan Mysteries and Christian Passover (A201; prog 14).

Sunday September 7

BBC-2

8.05* Solids, Liquids and Gases: Thermodynamics (3) (ST285; prog 13).
8.30* Science Foundation Course: Earth History (2) (S100; prog 27).
8.55 Science and the Rise of Technology since 1800: Steel (AST281; prog 9).
9.20 Man-made Futures: Design and Technology: Design Project Tutoring (T262; prog 10).
9.45 System Behaviour: Heart and Lungs (T241; prog 14).
10.10 Statistical Sources: Fuel Crisis (D291; prog 7).
10.35 New Trends in Geography: The Growth of American Cities (D281; prog 7).
11.00* Introduction to Materials: Transformer Core (TS251; prog 10).
11.25 The Curriculum: Context, Design and Development: Innovation Game (2) (E283; prog 7).
11.50* Technology Foundation Course: Transportation Case Study: How To Get Fast Trains Faster (T100; prog 20).
12.15 Linear Mathematics: Games Theory (M201; prog 28).
12.40* Making Sense of Society: Power in Society, San Francisco Bay Area Rapid Transit: Winning Public Support (D101; prog 26).

RADIO 3 (VHF)
(Additional programmes for North Scotland and Parts of Wales)

6.00* Complex Analysis: Laplace Transforms (M332; prog 7).
6.20* Second level Science: Experimental Approaches to Amnesia (S2-Biol; prog 10).
6.40* Open Forum—Preparing for the O.U.

RADIO 3 (VHF)

7.00* Systems Modelling: For or against cost benefit analysis (T341; prog 7).
7.20* Linear Mathematics: Function Approximation (M201; prog 19).

RADIO 4 (VHF)

9.10 School and Society: Questions of Priority Part 2 (E282; prog 14).
9.30 Statistical Sources: Gnomes and Shahs (D291; prog 14).
9.50 New Trends in Geography: Historical Geography: The Phenomenal and Behavioural Environment (D281; prog 14).
10.10* Technology Foundation Course: The Death and Rebirth of Transport Systems (T100; prog [illegible]).

Monday September 8

BBC 2

6.40* Teaching Strategies: Case Study: Teaching Industry (PET271; prog 9).
7.05* Man-made Futures: Design and Technology: Design Project Tutoring (T262; prog 10).
7.30* Statistical Sources: Fuel Crisis (D291; prog 7).
17.00* The Age of Revolutions: The Festival of the Supreme Being (A202; prog 14).
17.25* Quantum Theory and Atomic Structure: Shapes and Angular Momenta in Atoms (SM351; prog 9).
17.50 Principles of Chemical Processes: Catalysis (ST294; prog 14).
18.15 Electromagnetics and Electronics: Design Study 2—Time Base Generator (TS282; prog 15).
18.40 Mathematics Foundation Course: Solving Simultaneous Equations (M100; prog 28).

RADIO 3 (VHF)
(Additional Programmes for North Scotland and Parts of Wales)

6.00 History of Architecture and Design 1890-1939: London Transport Design (A305; prog 26).
6.20 International Politics and Foreign Policy: The Council of Europe (D332; prog 14).
6.40 The Digital Computer: Mock T.M.A. No. 4 (TM221; prog 14).

RADIO 3 (VHF)

17.45 Problems of Philosophy: Moral Philosophy in Practice (A303; prog 6).
18.25 Microeconomics: Contemporary Views on Welfare Economics (D222; prog 12).
18.45 Urban Education: Evaluation and Alternative Schools (E351; prog 10).
19.05 Making Sense of Society: Legislating the Future (D101; prog 27).

Tuesday September 9

BBC 2

7.05* Linear Mathematics: Games Theory (M201; prog 28).
7.30* The Development of Instruments and their Music: An Introduction to Electronic Music (A304; prog 13).
17.00* Topics in Pure Mathematics: Compactness (M202; prog 28).
17.25* Science and the Rise of Technology since 1800: Steel (AST281; prog 9).
17.50 An Algorithmic Approach to Computing: Compiling (M251; prog 11).
18.15 Technology Foundation Course: Statistics and Reliability (T100; prog 10).
18.05 Science Foundation Course: Electromagnetic Radiation (S100; prog 28).

RADIO 3 (VHF)
Additional programmes for North Scotland and parts of Wales

6.10* Mathematics Foundation Course: Differential Equations I (M100; prog 21).
6.35 Science Foundation Course: Deep Sea Drilling Project (S100; prog 28).

RADIO 3 (VHF)

17.45* The Curriculum: Context, Design and Development: Brachead—To Kill with Kindness: Part II (E283; prog 14).
18.05 History of Architecture and Design 1890-1939: London Transport Design (A305; prog 26).
18.25 Instrumentation: Signals in Noise (T291; prog 7).
18.45 International Politics and Foreign Policy: The Council of Europe (D332; prog 14).
19.05 Physiology of Cells and Organisms: Decompression Sickness (S321; prog 7).
24.00* Microeconomics: Contemporary Views on Welfare Economics (D222; prog 12).
00.20* Statistical Sources: Gnomes and Shahs (D291; prog 14).
00.40* Problems of Philosophy: Moral Philosophy in Practice (A303; prog 6).

Wednesday September 10

BBC 2

6.40* Biological Bases of Behaviour: Ethology (SDT286; prog 14).
7.05* Environment: Rivers (S2-3; prog 3).
7.30* Geochemistry: Geochemical History of the Earth (S2-2; prog 3).
17.00* The Curriculum: Context, Design and Development: Innovation Game (2) (E283; prog 7).
17.25* The Early Roman Empire and the Rise of Christianity: Religions of the Empire (A291; prog 7).
17.50 Reading Development: Using Special Resources (PE261; prog 10).
18.15 Urban Development: Warsaw: A Socialist City. Programme 2: Housing (DT201; prog 14).
18.40 Arts Foundation Course: Glasgow the Industrial City (A100; prog 30).

RADIO 3 (VHF)

6.00* Open Forum—Preparing for the O.U.
6.20* School and Society: Questions of Priority Part 2 (E282; prog 14).
6.40* New Trends in Geography: Historical Geography: The Phenomenal and Behavioural Environment (D281; prog 14).
17.45 Open Forum—Preparing for the O.U.
18.05 Complex Analysis: The Prime Number Theorem (M332; prog 8).
18.25 Environment: Hydraulic Modelling (S2-3; prog 1).
18.45 Mechanics and Applied Calculus: Rotating Frames (MST282; prog 7).
19.05 Mathematics Foundation Course: Linear Algebra IV (M100; prog 28).
24.00* The Digital Computer: Mock T.M.A. No. 4 (TM221; prog 14).
00.20* Instrumentation: Signals in Noise (T291; prog 7).
00.40* The Early Roman Empire and the Rise of Christianity: Pagan Mysteries and Christian Passover (A201; prog 14).

Thursday September 11

BBC 2

6.40* Urban Development: Warsaw: A Socialist City. Programme 2: Housing (DT201; prog 14).
7.05* International Politics and Foreign Policy: Settlement or Resolution—The Golan Heights (D332; prog 7).
7.30* Great Britain 1750-1950: Sources and Historiography: Images of the Working Class (A401; prog 11).
17.25* New Trends in Geography: The Growth of American Cities (D281; prog 7).
17.50 The Nineteenth Century Novel and its Legacy: Virginia Woolf's Criticism of the Novel—"Life Escapes" (A302; prog 14).
18.15 The Handicapped Person in the Community: Working Together (PH53; prog [illegible]).
19.05 Making Sense of Society: Power in Society, San Francisco Bay Area Rapid Transit "Conflict with Berkeley" (D101; prog 27).

RADIO 3 (VHF)

6.20* Regional Analysis and Development: Regional Planning in a Developing Country (D342; prog 10).
6.40* The Age of Revolutions: Stendhal and Romanticism (A202; prog 28).
17.45 Topics in Pure Mathematics: Topological Properties and Constructions (M202; prog 14).
18.05 Systems Management 1: The EEC—An Organisation with nine Independent Bosses (T242; prog 7).
18.25 Comparative Government and Politics: Radio Tutorial (TMA III) (D231; prog 7).
18.45 Technology Foundation Course: The Reliability of Vehicles (T100; prog 23).
19.05 Science Foundation Course: Deep Sea Drilling Project (S100; prog 28).

(Additional programmes for North Scotland and parts of Wales.)

24.00 Arts Foundation Course: Striking Times (A100; prog 30).
00.25* Language and Learning: Disadvantage (E262; prog 13).
00.45 The Curriculum: Context, Design and Development: Brachead—To Kill with Kindness: Part II (E283; prog 14).

Friday September 12

BBC 2

6.40* An Algorithmic Approach to Computing: Compiling (M251; prog 11).
7.05* Reading Development: Using Special Resources (PE261; prog 10).
7.30* Elementary Mathematics for Science and Technology: Linear First Order Equations (MST281; prog 14).
17.00* War and Society: The Impact of the Second World War on Indonesian Nationalism (A301; prog 14).
17.25* Systems Behaviour: Heart and Lungs (T241; prog 14).
17.50 Mechanics and Applied Calculus: Rotating Frames (2)—Applications (MST282; prog 14).
18.15 Ecology: Indicator Species (S323; prog 14).
18.40 Genes and Development: Genes and Development (S2-5; prog 3).

RADIO 3 (VHF)

6.20* Renaissance and Reformation: English Nationalism at the Time of the Renaissance (A201; prog 28).
6.40* Decision Making in Britain: Foreign and Commonwealth Office: Information Flows (D203; prog 28).
17.45 Computing and Computers: Radio Tutorial (PM951; prog 10).
18.05 Public Administration: European and British Traditions in the Study of Public Administration (D331; prog 4).
18.25 The Development of Instruments and their Music: The Later Music of Pierre Boulez (A304; prog 14).
18.45 Teaching Strategies: Examining School Technology (PET271; prog 4).
19.05 Arts Foundation Course: Striking Times (A100; prog 30).

Additional programmes for North Scotland and parts of Wales

24.00 Making Sense of Society: Legislating the Future (D101; prog 27).
00.20 Urban Development: Socialist Urban Society (DT201; prog 28).
00.40 Decision Making in Britain: Foreign and Commonwealth Office: Advice and Policy (D203; prog 29).

Carnegie highlights key influence of class

from Frances Hill

NEW YORK

Social class and race still have a major influence on the sort of higher education—if any—a student is likely to receive. This is made clear in a new volume of essays sponsored by the Carnegie Commission on Higher Education, edited by Martin Trow.

A disproportionate number of undergraduates are from middle and upper-middle homes, and the higher the social class of a student, the more prestigious the institution he or she is likely to attend. This is true for black students as well as white, but more low and middle-income blacks are concentrated in low-quality institutions than low and middle-income white students.

It is clear that race has a negative effect independent of class, says Judy Roizen, research sociologist at the University of California, Berkeley, in an essay on black students in higher education.

She says that black families with incomes comparable to whites are less likely to have a child in college and blacks are far more likely to be at more modest institutions than whites from similar class backgrounds.

In 1970, 70 per cent of black undergraduates were attending the lowest-quality four-year colleges and junior colleges, as compared with only 52 per cent of white undergraduates. Increases in black enrolment over the past five years appear to be taking place mainly in the lower quality institutions.

Since the future prospects of most black students depend on the quality of the institutions they attend, equal opportunity to enrol at an institution—however low its quality—does not amount to true equality of opportunity, Judy Roizen says.

Oliver Fulton and Martin Trow, both of the University of California, Berkeley, point out that "the level of self-recruitment at the elite universities is extremely high." Teachers who have degrees from elite graduate schools command the highest prestige and the highest salary.

In an essay on academic women in the United States, Oliver Fulton says that the proportion of female teaching staff dropped back in 1960 to 19 per cent, the level it had been in 1910. The proportion is now 20 per cent.

Those over 55 years of age make up one-quarter of female staff, while those in their early thirties make up one-seventh. Women born before the end of the First World War took advantage of the new opportunities for their sex, says Oliver Fulton, but then their successors stayed at home in increasingly large numbers. But among staff aged 30 or less the proportion of women rises with females comprising 22 per cent of the 26-30 age group and 37 per cent of the age group of 25 and under.

The increase under 30 comes entirely from women who are childless, and there is no clear evidence about whether or not these young female academics will have children and drop out of the profession.

Women are most strongly represented in the lower status departments. The newer professional schools, including education, have the highest proportion of women and in the fine arts and humanities, women constitute about one-quarter of all staff members.

In business and the biological and social sciences women are around one-sixth of the staff, in physical sciences, medicine and law they are less than one-tenth, and in engineering less than half of one per cent.

Because 37 per cent of all female staff are concentrated in education and the newer professions, over one-third of women suffer from the lower pay and lower status to which both their sex and their association with these subjects contribute.

The proportion of women rises fairly steadily as the quality of institution declines. More than two-thirds of all female academics are currently teaching in four or two year colleges (and less than one-third in universities) while men are equally divided between universities and other institutions.

The proportion of women also rises as the level of academic rank declines and only four per cent of full professors at the country's leading institutions are women. The average mean salary for academic men is $13,000, while for women it is $9,800.

Oliver Fulton suggests that the concentration of women in lower ranks of the academic profession can be partly explained by the fact that they publish less than men. But even among men and women with high publication rates, 30 per cent fewer women than men hold full professorships, and women earn between $4,000 and $6,000 less in annual salaries than men. But single women are promoted more often than married women and do nearly as well as single men. But single men do markedly less well than their married counterparts.

Since neither women nor single men conform to the conventional role of the worker as a male bread winning head of a family, "they will appear, however mildly, as deviant to the majority of their colleagues who are married males", says Oliver Fulton.

Other essays discuss teachers' and students' political attitudes, research activity in higher education, religious involvement and scholarly productivity, marital status and graduate education, and the impact of peers on student orientations to college.

Teachers and Students: Aspects of American Higher Education. Edited by Martin Trow. A volume of essays sponsored by the Carnegie Commission on Higher Education. McGraw Hill.

Peter Scott, page 13

Colleges aid desegregation scheme

from Our Correspondent

BOSTON

Boston has been plagued with riots and violence since bussing for school integration was introduced in 1974. And this summer 21 colleges are taking part in a new plan to promote desegregation.

This means that schools and colleges will cooperate in an attempt to raise standards of elementary and secondary education, and will start or expand special "magnet" programmes in 11 selected secondary, middle and elementary schools.

The state of Massachusetts supplied $900,000 in April so that the colleges could begin discussing with the schools questions such as revising curricula, occupational and bilingual education and, in the case of the magnet schools, developing special courses in new subjects.

During June, university presidents and Boston school principals held a preliminary meeting. More funds became available at the end of that month, and serious planning began in July.

Projects such as computer science and occupational education — in which university teachers will provide specialized knowledge — will begin in a few schools in the new school year. Discussions on new developments and revisions of curricula and services will continue at other schools through the autumn.



Police protection and bussing in Boston

New programmes at the magnet schools are intended to give a "distinctive thrust", says Francis H. Duehay, one of the project's organizers. The concept is gaining popularity in the United States as a means of attracting white students into preponderantly black schools—or vice versa—without exerting external pressure or using formal procedures.

The universities will help the magnet schools develop the new specialized programmes which will make them distinctive. The exact form of the cooperation between schools and colleges is not yet known, but there will be regular meetings between university and school personnel, and university lecturers may teach in school classrooms.

The universities taking part include the Massachusetts Institute of Technology, Harvard and Brandeis. The state of Massachusetts is expected to provide further funds to maintain and possibly expand the scheme.

Controversial president resigns

CAMBRIDGE, MASS

Dr Donald Hornig, president of Brown University, is to resign next June. His decision comes at a time when Brown is facing mounting financial problems which have created tensions among the faculty and which led to a student strike last April, during which some groups called for his resignation.

A Harvard-educated chemist, Dr Hornig was a former science adviser to President Johnson. He became president of Brown in 1970. During his five-year tenure, he established a full medical programme, further developed its curriculum and presided over the merger of Brown and Pembroke into a coeducational undergraduate institution.

Like most American universities, Brown expanded its aspirations and physical operations during the educational boom years of the late 1960s, when enrolments were increasing, the economy was in an upswing and federal grants were plentiful.

Now, however, Brown, like many other institutions, is facing severe cutbacks, but its financial problems are more acute than those of many private universities, particularly its Ivy League competitors. The university has spent $25m of its capital holdings to keep itself economically afloat over the past seven years. In addition, Brown's endowment, valued at $116.5m in 1972, has shrunk to $87m, largely because of the depressed stock market.

Dr Hornig's solution to these economic problems was laid out in a "white paper" to the faculty and students last spring. He proposed a three-year austerity budget to deal with the fiscal crisis, with a 15 per cent cut in university expenditure.

There was immediate opposition from the faculty, who claimed that cutbacks were falling most heavily on the humanities and social sciences departments.

The opposition soon spread to the students, who demanded to examine the university books so that they could make suggestions as to where cuts might be more effectively made. The administration refused, and last April there were mass rallies, a four-day strike and the seizure of University Hall by black and other minority students, who complained that the first casualties of the cutbacks would be the special minority courses begun as a result of the student protest years.

Although a compromise was eventually reached with the student strikers, a legacy of bad feeling toward Dr Hornig, both on the part of students and some faculty members seems to have remained and

Radical economics revives as recession bites

from Angela Stent

CAMBRIDGE, MASS

Economics, according to one official of the American Economics Association, is a countercyclical profession: "When times get hard in the economy, they get good for economists," he says.

This relationship has turned economics into one of the most popular disciplines on United States campuses this year. It has also intensified the debate on how economics should be taught, which in turn has caused many splits in economics departments throughout the country.

Radical economics has become respectable. Curricula have been altered and, for the first time, Marxist economics is an acceptable part of undergraduate courses.

This year enrolments in introductory economics courses went up from between 40 to 60 per cent at some universities, and economics is now one of the most popular majors.

At Harvard, for example, there has been a sharp decline in students majoring in political science and history. On the other hand, the enrolments on the introductory economics course have gone up in four years from 550 to 870. This makes it the largest undergraduate course at Harvard.

The economic recession seems to have turned students to economics as a way of insulating themselves from its financial effects. "Students are concerned about their own economic security when they get out" says one University of Massachusetts professor. "They think it will be easier to get a job if they take economics."

Another unexpected result of the recession is the sudden rise in demand for economists. Most academic conventions in the past year spent much of their time bemoaning the desperate job situation for those with PhDs. But at the American Economics Association meeting there were 500 employers recruiting economists.

But, despite this apparent boost, all is not well. According to Professor Paul Samuelson, the Nobel Prize winner whose economics textbook has sold three million copies, stagflation has led to increased self-examination by the profession.

It is a sign of this that in the latest edition of his book, Professor Samuelson has devoted a chapter to Marx. He writes: "It is a scandal that until recently even majors in economics were taught nothing of

This lack of attention has become a controversial issue on many United States campuses. Two years ago, Professor Samuel Bowles, a radical economist, was denied tenure at Harvard because of what he claimed were political objections to his views. Another Marxist economist left with him, and they are now teaching at the University of Massachusetts at Amherst, which has become a centre for radical economists.

As more Marxist economists have lost their jobs the American Economics Association has formed a committee to investigate dismissals at San Jose State College in California, and at Lehman College, part of the City University of New York.

The organization for Marxist economists is the Union for Radical Political Economists, which in the past year has grown by 25 per cent to more than 2,500 members. URPE is currently urging its members to hold "teach-ins" and "teach-outs" for students, workers and consumers on the current crisis.

Much of the attention being paid to the radical economists stems from their analysis of the causes of the current recession and inflation. Generally they view the situation as the first genuine postwar economic crisis, whose basic cause is the falling rate of profit.

Unlike traditional economists, who see the government as the arbiter of different interests within society, the radicals argue that governments inevitably serve the interests of the big corporations. Some even claim that the government has deliberately engineered the current recession in order to "discipline" labour. However, few of them actually forecast the imminent collapse of the capitalist system.

The more traditional Keynesian economists are equally gloomy. "There is no agreed cure for stagflation", says Professor Samuelson. "We do know how to prescribe for a serious recession—but how do you do it without going back to inflation?"

There has also been a growing attack from the right. The "libertarians" believe that the current crisis is due to government interference in the free market. For example, Mr Murray Rothbard, a leading conservative economist, blames the artificial expansion of government-supported bank credit.

As the debate continues, most professors and students agree that the current crisis has made economics a more stimulating discipline. "A few years ago we taught the Keynesian model and that was it", says Professor Elisabeth Allison, director of Harvard's introductory economics course. "Now it's an open ball

42% are 'helped by parents'

From Frances Hill

NEW YORK

Students from families with incomes above $25,000 pay an average of $430 a year more for higher education than students from families with lower incomes.

This finding from a census bureau report on student income and expenses emphasizes the degree to which the levels of family income determine the cost of the higher education which students receive.

An American college education can cost anywhere between $620 a year and $2,640. The report says students who receive financial help from their parents find it easier to study full time or to attend more expensive schools.

among four-year college students the proportion goes up to 61 per cent. Forty-four per cent of students under graduate level work while attending college, and earn on average about $3,300 a year.

Eight per cent of students receive state scholarships or grants and about 7 per cent receive local scholarships or grants. Other sources of income include personal savings, spouse's income and veterans' benefits.

Blacks made up about 8 per cent of the total post-secondary enrolment in October, 1973, the report says. While a slightly lower proportion of blacks than whites was attending universities, the proportion of blacks attending two-year colleges and vocational schools was somewhat higher than that for white students. Similar proportions

TIMES PAST
THE TIMES
HIGHER EDUCATION SUPPLEMENT
New Printing House Square, London WC1X 8EZ. Telephone 01-837 1234

Excellence or equality?

"There is some danger that society will lose sight of the distinctive competence of a university, which is to serve as a centre of learning and free inquiry, of civilization and culture, as a centre for the unfettered exchange of ideas, as a place where men can attempt to discover and teach the truth", Mr H. J. Habbakuk, vice-chancellor of Oxford University (page 6).

"The university ideal has become distorted. Universities have pursued expansion into vocational and professional fields for which they are not suited. The university ideal has given rise to a hierarchy of esteem in which human activities are graded. It has shrunk the area of freedom available to students", Sir Alex Smith, chairman of the Committee of Directors of Polytechnics and a member of the University Grants Committee (page 8).

"The slowly dawning realization that no university, no department is going to make the first division, will not have the resources or the students or the encouragement from public authorities to become another world class institution, can lead to a sense of frustration and resentment", Professor Martin Trow (*THES*, August 29).

"Higher education has taken the place of defence—it is at the bottom of the league", senior civil servant.

As the 1975-76 academic year starts in Britain, some of the themes that seem likely to dominate the continuing debate about Government policy on higher education are already emerging, and they are much more sharply etched: the sudden realization, even by egalitarians that standards of excellence in universities will soon be genuinely threatened and the resentment of the polytechnics at the superior status and funding of the universities and the lack of any policy at all for the colleges, each of which are being made more acute by the sudden slowing down of expansion and the even fiercer squeezing of budgets.

At Lancaster University this week the distinguished international conference has been discussing "Excellence or Equality—A Dilemma for Higher Education?", a subject which neatly encapsulates and synthesizes the new themes of the mid-1970s.

Neither Sir Alex Smith nor Mr Habakkuk are in the habit of making long speeches to the annual round of academic conferences. Yet each spoke with conviction, even a passion, that was all the more distinctive for being unexpected. What is equally interesting is that their views seem closer than even they themselves might suspect.

Sir Alex wants universities—and wants them to fulfil the same role that Mr Habakkuk enunciated—and Mr Habakkuk acknowledges the important role in further and higher education of institutions other than universities. Each is critical of the increasing role of the state and each is anxious both to extend opportunity and to maintain excellence whether it be university, college or polytechnic excellence.

Some common sense and a sense of fraternity are therefore beginning to enter the debate about the directions in which universities, colleges and polytechnics ought to be moving, and they are remarkably (and perhaps irritatingly) similar to those charted by Mr Crosland and Mrs Thatcher.

Universities, many of which are rapidly assuming the role of polyversities as they hasten to demonstrate how much better they are at being polytechnics than the polytechnics, ought perhaps to consider now whether continuing expansion is in their best interests. A virtual halt to growth might be the best method of protecting their unique and special roles, especially in research.

As student numbers grow, colleges and polytechnics would then be given a real opportunity to show their mettle, especially in teaching, and to become more efficient institutions with less of the demoralization and sheer waste of public money in many departments that some of them have now. As Professor Trow argues this week (page 2), excellence and equality can coexist in a mass system and such an arrangement might be the best method for Britain to continue to maintain the one and extend the other.

Dangers of the dole

The National Union of Students next week initiates a new campaign on educational expenditure, and in particular it will be seeking a substantially more generous grant system. It is clear that many influential and significant figures in academic life share with the NUS its belief that an improved method of supporting students is needed, and there is general agreement that the Anderson principle has been seriously eroded.

Interviewed on radio recently, Lord Ashby, former master of Clare College, Cambridge, talked of the "Brontosaurian lethargy of the Department of Education and Science in doing anything about undergraduate grants" (see page 3), while Lord Annan, provost of University College, London, in a contribution to a new book, *Universities for a Changing World*, wrote that both Conservative and Labour governments had, in effect, cut student grants when faced with economic difficulties (page 3). He asked: "Why should students not attempt to compensate themselves for the losses which they have sustained through the effect of inflation upon their grants?"

The NUS has already used the perfectly legal device of telling students of their right to claim unemployment benefit if they cannot find work during the vacation, a right exercised this year by some 99,000 students.

Lord Ashby, who could not conceivably be described as a student baiter, has condemned this practice as a "racket", pointing out that undergraduates cannot simultaneously be described as unemployed and as full-time students. This is mum student grant in 1974-75 was only £58: in 1975-76 it will be only £70. Furthermore, the exercise of one's full legal rights is a perfectly respectable technique for securing social justice.

But none of this alters the power of Lord Ashby's principal argument that the NUS has endorsed a dangerous and misguided practice. The effect may be the erosion of a basic principle of our welfare system and even the introduction of new grants systems which would not be at all to the liking of the NUS.

He and Lord Annan both discuss the idea of student loans, either of a full or partial nature. Loan schemes seem attractive and in the long run may prove irresistible, yet this is a development to which the NUS and others in higher education, would be implacably opposed.

Loan schemes are seen to work well in Europe and in North America, while in Russia, every student gets a full and adequate grant: but the NUS might be little happier about the Soviet alternative. Five factors determine the size of a Russian student's grant: scientists get more than artists (twice as much, in fact), good students get more than poor students, conscientious students get more than feckless ones, higher level students get more than first years, and wealthy parents are expected to pay the full amount.

Perhaps understandably, the NUS is reluctant to accept Lord Ashby's arguments, but it would do well to pay them special heed and adjust its tactics accordingly. As with so many other issues, a little attention paid to its public stance might help the stems more from difficulties of the school system and the lack of a university tradition than it does from any narrowly political source.

This situation is exploited by both left and right-wing elements and, naturally, the government being right-wing, it is invariably the left who suffer a willing martyrdom in their attempt to politicize the universities.

What is encouraging in this sad situation is that there are Turkish academics who, whatever their views may be as Turkish citizens, are in their professional capacities heartily sick of any attempt to use their institutions for political purposes.

A further thing which surprises me in Mr Barchard's article is his bland assumption that METU is Turkey's best university. If anything it is a product of the honeymoon between Turkey and the USA over a decade ago which, as we know, has now led to separation and may lead to divorce.

Does Mr Barchard really see no connection between this year's events at METU and the current expulsion of American military personnel from Turkey by the Demirel Government? What on earth do they read nowadays in the Nuffield senior common room?

Yours sincerely,
DAVID BELL,
Department of logic,
Glasgow University.

Civil Service fees

from Dr D. E. Eversley

Sir,—May I strongly support Mr D. L. Munby's letter (*THES* August 29) regarding the ridiculous changes in the method of paying Civil Service College lecture fees. He has studied the exact procedures much more closely than I have, though I independently came to the conclusion that it was just not worth the effort.

Incidentally, the same method is used (and has been used for the last year) by the SSRC, from whom one gets a gross fee of £12.50 for a meeting lasting all day preceded by at least two or three days of reading applications, bids for studentships, etc. They then go through the same business of "grossing up" the expenses and taxing the lot at 35 per cent.

The iniquity lies in this. For all other work which I do in my spare time, leave days, evenings and weekends, I am allowed to put the proceeds on schedule D.

As such work normally involves the upkeep of a different part of one's library than one's normal occupation, and since all the usual exemptions (study allowances, subscriptions, etc) are applicable to schedule D, the effective rate of tax under the old system was, say, 25 per cent, so that one counted on being paid, say, a remuneration of about 50p an hour for what one did.

Now that the attempt is made to put these earnings on schedule E, the net proceeds sink to about 10p an hour. As it happens, I do the SSRC work for reasons other than monetary gain, but the Civil Service College business is more serious because it rarely pays off in terms of student feedback.

Therefore a trip to Sunningdale (even with expenses paid), at effectively £5 for the best part of a day's work, one feels that there must be fairer ways of taxing such efforts.

Needless to say, private institutions, newspapers and journals, and as far, the radio and television stations, have not resorted to this method of predetermining one's tax rate. I can, of course, use an accountant to get some of this back again, but this in itself is an expensive business.

It is time the whole matter was looked at again. Mr Munby's suggestions of a total boycott will, alas, fall on deaf ears as far as those people are concerned who have to rely for a considerable part of their shrinking standard of living on this sort of opportunity, even if he and I can afford to say "no thank you".

Yours faithfully,
D. E. C. EVERSLEY.

Entry changes

from Dr J. M. Frayn

Sir,—Professor Hayek's suggestion (*THES* August 29) that special conditions of university entrance should be permitted to students capable of making an original contribution to knowledge is attractive. Yet surely we should not go out of our way to make life difficult for those so endowed?

Under the existing arrangements many students make considerable sacrifices in order to study. To impose additional burdens upon those who seem likely to be the most progressive members of our society would imply a strange sense of values. Or has our nation no future except as an assembly line, for ever producing bric-a-brac in response to artificially stimulated demands?

Yours sincerely,
JOAN FRAYN,
Arthur Road,
Kingston upon Thames,
Surrey.

Sanskrit planning

from Mr D. W. Barron

Sir,—Lord Crowther-Hunt's remarks on the need to respond to national requirements have aroused many reactions, but the prize must surely go to the University of Oxford for its proposal to fill chairs in Anglo-Saxon, Sanskrit, interpretation of holy scripture and exegesis of holy scripture. What a splendid piece of manpower planning!

Yours faithfully,
D. W. BARRON,
Department of Mathematics,
Southampton University.

Science degrees

from Mr Ian Court

Sir,—Professor Hunt is so right in his assessment that the top echelons of the Civil Service are incapable of recognizing their deficiency of technically competent people. Recruited as entrants, their condescension to the technological age is to expect a knowledge of mathematics to the level of simple arithmetic and of sciences, based on those of science as Galileo and Dr Bronowski. Not for them any acquaintance with the works of Lagrange, Heisenberg or Hoök, etc.

However, his desire to see science-trained graduates in more varied senior positions will not be gratified just by persuading more students to read science subjects. A necessary condition is a change in the course contents of most science degrees. There must be less emphasis on the needs of the prospective post graduate researcher and the inclusion of a substantial study of the social, economic and political role of science and technology.

Yours sincerely,
IAN COURT,

Transfer credit

from Mr W. J. Dey

Sir,—The secretary of the Standing Conference on University Entrance has properly and politely presented a defence of SCUE against the rather intemperate criticism of your leader in the *THES*, August 8). As it may be thought to have a personal interest in the repute of SCUE I hope that you will allow me to put forward a few points which may have been overlooked when your leader was written.

● SCUE must consider the whole question of transfer from all sides and cannot confine itself to the movement of Open University students into the traditional university courses.

● In considering Open University students, of whom some have not acquired at school the usual academic credentials through the GCE, the first question to be answered by each university concerns the possibility of counting Open University foundation courses as a substitute for the traditional entry qualifications.

If the first hurdle can be overcome (and it usually is solved in individual cases) a further question arises over the acceptance of studies and examinations in one university as excusing the student from taking again similar courses and examinations in another university.

This point concerns far more institutions than the Open University alone. When the individuality of universities in the United Kingdom is one of the advantages of the varied system avoiding the drabness of uniformity it is inevitable that mobility of undergraduates with transfer credit is approached by SCUE with caution.

I support SCUE in its prudent approach to a problem which is beset with difficulties. The first essential is to recognize the difficulties which include the wider application of transfer credit to students from other United Kingdom universities and polytechnics, commonwealth universities and universities throughout the world.

I would suggest that a thorough study of mobility is required: there have already been studies by various bodies (e.g. Council of Europe) of this problem. The British Council is deeply involved in expediting mobility and is aware of the snags which can arise. It seems somewhat unfair to suggest that SCUE has postponed the OU proposals through toffee-nosed attitudes and lack of the spirit of adventure. SCUE should rightly advocate policies of which the possible consequences have been explored.

Yours faithfully,
W. J. DEY,
University Entrance Requirements

Turkish universities

from Mr D. R. Bell

Sir,—I find it difficult to accept that David Barchard (*THES* August 22), now of Nuffield College and late of *The Guardian*, can have produced on first-hand observation the mixture of downright falsehood and tendentious diagnosis of the situation in the Middle East Technical University in Ankara.

For example, he speaks of "Turkey's other universities, which are crammed into ancient buildings with pitifully few facilities". Has he visited the recently built campuses of Hacettepe University and the Bosphorus University? Clearly not.

It is anything but my intention to suggest that the Turkish universities are without problems or that these problems can be solved by the arguably necessary provision of police and troops not only in METU but elsewhere.

His diagnosis would have benefited had he brought to your attention the fact that innocent people have been shot, killed and injured in student riots; in addition his diagnosis entirely ignores the academic roots of the problems.

The first sensible thing to suspect in a boycott of examinations is that the absent students did not think they would pass anyway. The imposition of standards by some faculties to which a large proportion of students cannot attain is a key factor in the present Turkish situation and

Soviet students

from Mr H. D. Hughes

Sir,—Moscow seems a peculiar venue for the vice-chancellor of Oxford University to choose for an attack on recurrent education and the adult student (*THES*, August 22). Surely he must be aware that for many years entry to universities in the Soviet Union has been normal up to 35 years of age, and that a high proportion of students in Soviet institutions of higher education are workers studying part-time and by correspondence, with special arrangements for paid educational leave for periods of study and examinations.

For social and educational reasons, preference is often given to students with some years of experience of work and public service after leaving school.

It is to be hoped that the delegates from the East European and Scandinavian countries in particular, with relevant knowledge of the merits of mature students, responded with vigour to his address. One can imagine the reaction in senior common rooms here if the head of Moscow University had launched an attack in Oxford on the collegiate system of student selection, with similar lack of experience on which to draw.

Yours faithfully,
H. D. HUGHES,
Principal,
Nuffield College, Oxford.

'The expansion of university education in the US since 1945 has probably intensified, and has certainly legitimised, the existing social hierarchy'

Education fails to remove class barriers in American society



Dental students at Washington's Howard University, a predominantly Negro institution that has accepted students of all races since its founding in 1867.

The middle classes are over-represented in higher education in almost every country in the world, even in the communist nations with their commitment to the advancement of the proletariat. It is generally recognized that in almost every case the expansion of higher education—or at least of traditional higher education institutions—benefits the middle classes in the short term.

Of course, it is possible to argue that greater opportunities for young people from middle-class families to attend universities and colleges that were once the almost exclusive preserve of a tiny elite represents a social advance. In any case this uncomfortable fact is usually mitigated by the strong, if less tangible, belief that in the long term the expansion of higher education will extend educational opportunities to all classes in the community and so advance the cause of equality.

The experience of the United States is perhaps the nearest we can get to a real test of this hypothesis: the expansion of higher education has proceeded further in America than in any other country, and this expansion has taken place in a nation that has a long tradition of democracy, a deep distrust of class hierarchy and a great faith in education.

Of course the middle- and upper-income groups are still over-represented in higher education in the United States. An 18-year-old from a family earning more than $15,000 a year is almost four times as likely to attend college as an 18-year-old from a family earning less than $3,000 a year.

According to figures derived from the 1972 Current Population Reports, published by the US Bureau of the Census, in autumn, 1971, 12.3 per cent of 18 to 24-year-olds from families with incomes of $3,000 a year or less attended college: 14.6 per cent of the same age group whose families earned between $3,000 and $5,000 a year were in college; 14.5 per cent of those from families with incomes between $5,000 and $7,500 (the only deviation from the pattern that the higher the family income the greater likelihood of college attendance; 18.3 per cent of 18 to 24-year-olds from families that earned between $7,500 and $10,000 a year; and 27.6 per cent of those from families with incomes of between $10,000 and $15,000 attended college. Finally, more than 46 per cent of young people from families with incomes of more than $15,000 a year were in college.

Although community colleges are supposed to cater for a new type of student, these same figures show that only a quarter of students from families earning less than $7,500 attended public community colleges, so even they have a disproportionate number of students from the middle and upper-income groups.

These figures, if anything, understate the class bias in American higher education. The report of a panel on financing low-income and minority students in higher education set up by the College Entrance Examination Board and published in 1973 estimated that more than 60 per cent of 18 to 24-year-olds from families earning over $15,000 attended college, and 45 per cent of those from families earning between $10,000 and $14,999. A working paper prepared for the panel also showed that 68 per cent of all full-time undergraduates enrolled in American colleges and universities in the academic year 1971-72 came from families that earned more than the then average family income of $9,623 a year (for families with high school graduates).

It is sometimes argued that fewer young people from lower-income families attend college because they place less value on a college education as a result of their cultural environment. However, while it is true that a smaller proportion of high school graduates from lower-income families is interested in attending college, even those who do plan to attend college are less successful in achieving this ambition than high school graduates from more prosperous homes.

A study carried out by Joseph Froomkin for the United States Department of Health, Education and Welfare found that while 46 per cent of high school graduates from families with incomes of less than $3,000 declared that they were planning to attend college, in fact only 17 per cent actually were studying in college the next year.

In the case of high school graduates from families with incomes of more than $7,500 71 per cent intended to go to college, and 57 per cent actually did so. So the percentage of high school graduates from the poorer homes who achieved their ambition of attending college was only 37 per cent, while four out of five of the high school graduates from more prosperous homes achieved their ambition.

All these figures and studies cast serious doubts on the conventional (and, for the already privileged, comfortable) explanations for the under-representation of young people from lower-income families among students in higher education.

For instance, it appears that a high school graduate from a poor family who is eager to attend college is discriminated against in access to higher education—on top of the structural discrimination he suffers through his membership of a social class that for a variety of complicated political, economic and cultural reasons places a lower priority on college attendance than more prosperous classes in society.

It also appears that in spite of the claim that America is a land of individual opportunity in which class distinctions have no place, higher education in the United States displays the same class bias as the more élitist, but also more meritocratic, higher education systems of other countries.

There are two possible responses to this situation—apart from the view that the apparent bias is only a reflection of the greater intellectual powers of the middle and upper classes, and in any case justified by the need to maintain a conservative social order (a view that must be unacceptable in America).

The first is a limited response and perhaps for this reason most popular among educators in the United States. It is concerned with the equity of the existing arrangements, not with the cause of equality. The primary concern is to see that the social classes which benefit from higher education are also the classes that bear most of the financial cost of providing higher education, and that the taxes paid by the majority do not pay for the benefits enjoyed by a minority.

Carried to its logical conclusion, this argument can be a powerful support for increasing tuition fees, which has the contradictory effect of making the present financial arrangements more equitable but of choking off future opportunities for students from poorer families.

This apparent contradiction can be mitigated but probably not completely resolved by two policies: the introduction of a more progressive tax structure which would allow the state to continue to subsidize higher education without at the same time subsidizing middle- and upper-income groups, or the creation of a comprehensive system of student grants based on a parental means test. Both policies would probably run into major political as well as practical difficulties.

The second response to the acknowledged class bias of the student body in higher education is to actively seek ways to reduce this bias by some form of positive discrimination in favour of students from lower-income groups.

This course of action would obviously create important technical difficulties, but the experience of affirmative action programmes in higher education to increase the representation of blacks and other minority students and staff has shown that such difficulties could be overcome. What is much more doubtful is whether the more serious political difficulties that such a scheme of social engineering would run into in America could be overcome.

One of the most remarkable features of the development of American higher education since 1945 is that in spite of the massive expansion of student numbers, the social hierarchy, of which middle-class bias is one symptom, has been maintained largely unchanged—between students and non-students and between institutions at different levels.

This fact appears to contradict the optimistic view that time and further expansion of the system will reduce the present bias in favour of the already privileged and advance the cause of the underprivileged. On the contrary, it is extremely difficult to argue that the academic system can remain for long uncontaminated by the unequal social order that has given it birth.

Indeed there is a strong argument that the fates of the academic system and of the prevailing social order are more intimately linked today than in the past, because the production of knowledge which is the main function of the academic system, is much more central to social development.

Where knowledge was once concerned with the discovery and description of the natural order, today it is concerned with the manipulation of this understanding in the cause of social development and economic growth.

This activist and instrumental conception of knowledge is held as much by the left-wing sociologist who regards his knowledge as an instrument of social change, as by the right-wing economist who regards his as an instrument to ensure the smooth working of the capitalist system. So the university has become a more direct servant of the state, and this has been reflected in the massive investment that the state has made in the expansion and improvement of higher education.

In another sense, too, the academic system has been incorporated more directly into the wider social order. Knowledge is not only the product of the academic system. From the point of view of the individual citizen, it is capital that bears interest to its possessor as surely as money capital.

Indeed there is a strong argument that intellectual capital may even in some cases outrank money capital in its value to the individual in his struggle to maintain or improve his position in society.

Professor Alain Touraine, a French sociologist with an intimate knowledge of American higher education, has written: "The role of education (at the end of the nineteenth century) could not be a central one, for the real selection process (of men capable of plunging into the adventure of progress) took place in the market. It was there that people's energy, initiative and enterprising spirit were put to the test. Today, on the contrary, the academic system is leading us to social and economic ruin." He attributes the cause of many American problems to lack of employment, and this unemployment to lack of proper training, and so to the inadequacy of the system of education.

It can be argued with conviction that many American colleges are still trying to offer a curriculum suitable for an élite system of higher education in an age of mass or even universal higher education. There seems at times little understanding that the literary, intellectual and conceptual patterns of thought and behaviour into which they are attempting to initiate their students may not always be appropriate in these changed circumstances.

It is rather as if the nations of Europe had never discovered the convenience of paper money and credit, and so been forced to rely on an increasingly debased gold and silver coinage as the means of exchange.

Of course there are in the United States educational institutions that in Europe would be regarded as part of "further education". Yet "further education" like "class" seems almost a taboo concept in America, as if it were undemocratic to make a distinction between "further" and "higher" forms of post-secondary education.

The only result has been to elevate "higher education" embodying the middle-class ideals of "college" and "degree", and to degrade "further education" which potentially offered a more popular and more relevant vision of education.

The expansion of higher education in the United States since 1945 has undoubtedly allowed many thousands, even millions, of young people to attend college who would otherwise have been forced to go straight into employment. However it has not led to greater social equality. In fact this expansion has probably intensified, and certainly legitimized, the existing social hierarchy in America.

Peter Scott

An extract from Strategies for Post Secondary Education, published last week by Croom Helm at £5.75. The author was previously deputy editor of The THES and currently

NOTICE BOARD

Chairs

Dr M. Cordey-Hayes, member of the multi-disciplinary team researching into problems of the built environment at the Centre for Environmental Studies, has been appointed to a new chair in transport assessment in the School of Automotive Studies, Cranfield Institute of Technology.

Dr C. C. Bird, senior lecturer at the University of Edinburgh, has been appointed professor and head of the department of pathology, University of Leeds.

Awards

Violet Vaughan Morgan Commonwealth Studentship in English: V. C. Mishra, University of Sydney.

David Rhiams Prize: L. Wood (faculty of medicine), University of Liverpool.

The Builders' Conference Prize: C. J., Wall, University of Reading.

Course news

The Imperial College of Science and Technology is offering five courses in October:

A short postgraduate course on wave mechanics will be held on October 14, 1975. It deals mainly with the steady-state systems, direct notation, matrix methods, perturbation methods and time dependent systems.

A short postgraduate course on introductory mathematics of diffusion will be held on October 14, 1975. The course concentrates solely on the differential equations for diffusion in an isotropic medium; boundary conditions and general methods of solution.

A short postgraduate course on physical measurements is to be held on October 13, 1975. It is suitable for first-year post-graduates in chemistry, chemical engineering or materials science. Fee: £24.00

A post-experience course on electron tube engineering will be held on October 14, 1975. The course offers an outline of the fundamental principles as well as the practical application of materials and processes in the manufacture of microwave cathode ray, camera and image tubes. A study project is undertaken. Fee: £120.00.

A post-experience course on vacuum technology will also be held on October 14, 1975. The course provides an introduction to the subject for research workers having little experience in vacuum techniques. A study project is undertaken. Fee: £120.00.

Admission for the courses should be made to the registrar, Imperial College of Science and Technology, Prince Consort Road, London.

News

The Institution of Electrical Engineers will be opening their new centre in south Wales on September 27 at the Bragwyn Hall, Swansea. Its aim is to strengthen the role of the chartered electrical engineer in the service of the community through meetings, conferences and exhibitions. Tickets for the opening can be obtained from the honorary secretary, Alan S. Gould, 15 Radyr Avenue, Mayals, Swansea.

The Marjorie Franklin Bequest is enabling the trustees of the Planned Environment Therapy Trust to study and train workers in the treatment of emotionally disturbed or maladjusted children or adults with planned environment therapy. Those planning similar projects are invited to submit an outline scheme to Roy Scheme, ABAA, 27 Marylebone Road, London, by the end of September.

* * *

More than 5,000 householders in Northern Ireland are being questioned in a housing survey being carried out by a team of five researchers from the New University of Ulster, the University of Birmingham and the housing executive. The project deals not only with the physical state of homes but also with the characteristics of households. The results will be used to assess the best way of tackling the housing problems in Northern Ireland.

* * *

Two out of four British Association special lectureships have been awarded to Leeds University lecturers. Dr John Gray of the University Marine Laboratory at Robin Hood's Bay, was Darwin lecturer and Dr Anthony Unsworth of the bio-chemistry group at Bradford lecturer at the association's meeting held at the University of Surrey.

ANTIOCH COLLEGE INTERNATIONAL (accredited USA)

offers M.A. degrees in Creative Writing

starting September 1975. 12 months (plus a thesis). Limited intensive workshops conducted by published authors. Director, prize-winning novelist, Alan Ross, in Peace Studies, starting June 1976. 15-18 months duration. Cost for either programme: $4,000

Write M.A. PROGRAMS, ANTIOCH CENTRE, 70 DANBURY RD., RIDGEFIELD, CONN. 06877

Appointments

Universities

Liverpool
Director: S. Holtings (physical recreation), University of Auckland.

London
Director: Professor A. L. Diamond (institute of advanced legal studies).

Strathclyde
Head: Dr T. F. Carbery (office organisation).

Polytechnics

Central London
Pro-rector: Professor M. Harker
Lecturer II: J. L. Gayler; P. A. Jones (School of Law)

North East London
Richard Farrand, formerly with ICI plastics division, has been appointed to the staff of the faculty of art and design and will be concerned with the diploma course in scientific photography

North London
Assistant director: D. Croome (resources)



"Bismarck slays the French-lion" is one slide in the teaching series "Bismarck in Caricature" by E. H. Dance. It is produced by Educational Productions Ltd in collaboration with the Historical Association (set of 12, No 57203, £1.80, available from 6P Ltd, Bradford Road, East Ardsley, Wakefield, Yorks).

General

Miss Jennifer Price deputy to the director of information, Department of the Environment, has been appointed chief information officer of the Department of Education and Science.

Mr J. F. Phillips, secretary and chief executive of the Institute of Chartered Secretaries and Administrators, of the Department of Education and Science, has been appointed chairman of the Council for the Accreditation of Correspondence Colleges.

Institution of Electrical Engineers: Mr J. R. Thompson, head of the department of systems and computing at the North East London Polytechnic, has been appointed chairman of the science, education and management division of the institution.

Professor John Leonard Douce, professor of electrical engineering at Warwick University, has been appointed chairman of the control and automation division.

Mr I. L. Davies, deputy controller air systems D, Ministry of Defence, has been appointed chairman of the electronics division.

Mr M. N. John, partner of Kennedy & Donkin, consulting engineers, has been appointed chairman of the power division.

Mr B. Groombridge, head of educational programme services at the IBA, has been apointed Leverhulme senior visiting fellow at University of Leeds.

Recent publications

Training Research Register (available from HMSO bookshops £4.80), an annual register from the Training Services Agency gives a classified guide to over 700 current and recently completed research projects in industrial and commercial training.

* * *

Social Security in Britain, a Central Office of Information reference pamphlet (available from HMSO, 70p), gives details of the new earnings related contribution system for national insurance, new benefits for disabled people and proposals for a new state pension scheme. There are separate chapters on the growth of the social security system, national insurance and industrial injuries, non-contributory benefits, war pensions, supplementary benefits, and social security rights.

* * *

The New Era, a journal of the World Education Fellowship. The July/August edition is devoted solely to the penal system with articles written by prisoners together with contributions from overseas colleges and universities, analysing the harm that prisons do and arguing the case for alternatives. Available from, Dilipos, University Bookshop), Education Department, 1 Malet Street, London WC1, or from the Honorary Treasurer, English New Education Fellowship, 2 Wilton Grove, New Malden, Surrey KT3 6RG, 25p, or 35p by post.

* * *

New Horizons: University Classes for Adults: published by the University of London, Department of Extra-Mural Studies, 7 Richmond Street, London WC1T 7AD. A detailed handbook listing subjects for university extension courses, tutorial and sessional classes and weekend courses.

* * *

Survey of Research and Materials Development in Vocational-Use of English, French and German 1974 Report (published by the Centre for Information on Language Teaching and Research, 20 Carlton House Terrace, London, £1.50 post free within Europe). The report describes 75 projects in detail, each described in English or French with references to progress reports and German. An introductory general section reports projects relevant to the teaching of any language for vocational uses.

* * *

The National Extension College, Cambridge 1975/76 Guide to Courses (available from The NEC, 131 Hills Road, Cambridge, 75p). It gives full details of over 80 correspondence courses for anyone over 16. Courses include GCE O and A levels, Open University preparatory courses and external London University degrees.

* * *

CCETSW Central Programme of Short Courses for 1975/76—22 Courses for people in social work published by the Central Council for Education and Training in Social Work, Clifton House, Euston Road, London NW1 2RS. Copies are available free from CCETSW's Publications Department).

* * *

Social Services Year Book 1975/76 (published by Councils and Education Press, 10 Queen Anne Street, London W1M 9LD, £6.25 plus 50p postage) a guide containing a full list of the regional and area health authorities together with the health districts, all the hospitals and, where they have been appointed, medical social workers and a complete list of the new Scottish local authorities.

* * *

French in Africa: A Guide in the Teaching of French as a Foreign Language by Jacques David (published by Unesco Press, 7 Place de Fontenoy, 75700 Paris, 28 francs) serves as a reference work, a pedagogical manual, a justification for the teaching of French and a survey of teaching methods.

* * *

Plain Speaking—a new monthly magazine to be published this month by Canonbury Publishing Company Ltd in association with the New English Library Limited is designed to help technical teachers in their fight against adult and juvenile illiteracy. It will use a blend of illustration and specially written text which does not "talk down" to readers, and deals with a wide range of subjects of interest to all ages presented within the framework of a selected yet progressive vocabulary.

(Distributed directly from The New English Library Limited, Barnard's Inn, Holborn, London EC1N 2JR, 01-405 6721).

Grants

Universities

Aberdeen
Psychology—£4,355 from the SSRC for research into an investigation of the photo-fit system for recalling faces.
Sociology—£5,608 from the SSRC for a pilot study of migrant labour in the North-East of Scotland under the direction of Dr R. S. Moure.

Aston
Organizational Sociology and Psychology—£2,334 from the SSRC for research in creating a data bank from the Aston programme of organization studies under the investigation of Professor J. Child.

Bangor
Social Theory and Institutions—£2,227 from the SSRC for research into the impact of second home ownership and occasional residence in Wales.

Bath
School of Electrical Engineering—Dr S. L. Hurst, £6,239 from the SRC for research into Digital fault diagnosis, using Radenacherwalsh spectral techniques.

School of Pharmacy and Pharmacology—Dr P. H. Redfern, £13,000 from Parkinsons Disease Society for research into the disease.

School of Physics—Professor W. D. Chesterman, £5,300 from the Ministry of Defence for research into acoustic propagation behaviour in sedimentary materials.

Library—Mr J. H. Lamble, £1,400 from the British Library for research into integration of instruction in information handling for undergraduates.

Belfast
Biochemistry—£30,697 from the MRC for research on structural and functional relationships of the glycoproteins of measles virus under the direction of Professor D. T. Elmore, Dr S. J. Martin and Dr N. L. Blumson.

Mechanical and Industrial Engineering—£19,400 from the SRC for research on the fundamentals of design of high-pressure pump components under the direction of Professor B. Crossland and Dr W. J. Skelton.

Bradford
Chemical Engineering—Professor W. L. Wilkinson, £20,000 from the SRC for continued research into the study of coating processes.

System Dynamics Research Group—£12,796 from the SSRC for policies for growth and stability in natural resource companies.

Dundee
Biochemistry—Dr Philip Cohen and Dr Tricia Cohen, £56,141 from the MRC for research, finally (£44,748), into two new enzymes recently discovered in muscle cells; and, secondly (£11,393), into several glycogen storage diseases.

Durham
Engineering Science—£46,550 from the SRC for research on lubrication of rolling element bearings, oil bearings, gas bearings and human joints, under the direction of Professor G. R. Higginson.

Zoology—£12,406 from the MRC for an investigation of the histochemistry, ultrastructure and innervation of the three types of mammalian intrafusal muscle fibre under the direction of Professor D. Barker.

Geology—£1,450 from the Transport and Road Research Laboratory towards an investigation on vibration measurements at Warrington under the direction of Dr P. J. Attewell.

Physics—£7,471 from the SRC towards the cost of a senior visiting fellow to work under the direction of Dr J. V. Major.

Archaeology—£2,500 (supplementary) from the Department of the Environment in aid of the investigation on research and rescue survey of the archaeological potential of the north under the direction of Professor R. J. Cramp, North-East Area Study—£5,200 from the SSRC to cover the cost of a survey and the erection of Mr A. E. Townsend and Mr R. I. Morley.

Mathematics—£2,486 (supplementary) from the SRC for an investigation into the classification of Riemannian Manifolds under the direction of Professor T. J. Willmore.

Economics—£14,335 from the SSRC for research into the effects of competition policy on profitability in British industry under the direction of Professor D. P. O'Brien.

Essex
Economics—£7,700 from the SSRC for research into investment, corporate behaviour and uncertainty under the direction of Professor C. J. Bliss.

Government—£5,016 from the SSRC for research into revolution and modernization; and historical approach to empirical theory.

Glasgow
Wellcome Surgical Research Institute—Dr J. V. Jones, Mr E. MacKenzie, Dr J. McCulloch and Dr D. D. Graham, £17,786 from the MRC for hypertensive studies on the cerebral circulation during chronic and malignant hypertension studies—Dr C. Gallagher, £3,150 from the SRC for the study of group technology in the structural engineering industry.

Veterinary pathology—Dr R. Thomson, £1,100 from the Smith, Kline and French Foundation for a study of canine bordetellosis with particular emphasis on vaccination.

Keele
Music—£9,000 from the Leverhulme Trust for the study of electronic music, under the supervision of Professor Peter Dickinson.

Communication—£4,272 from the MRC (extension) for work being carried out on location and delineation of lesions of the CNS by electrophysiological and subjective tests, under the direction of Dr E. D. Morgan.

Kent
Faculty of natural sciences—Dr J. A. M. McDonnell, £12,107 from the SRC for continued research on electron microscope studies on the craters in such samples formed by the impact of very high velocity meteorites in space, and on the subsequent erosion of these craters by the solar wind; Professor K. A. Stacey (biological laboratory), Dr A. Williams (chemical laboratory), £13,450 from the SRC for continued research on the preparation of synthetic polymers with enzyme activity.

Leeds
School of Economic Studies—£5,90 from the SSRC for a study on the economic history of British inland transport and communications 1600-1850, under the direction of Dr J. A. Chartres and Dr G. L. Turnbull.

Newcastle upon Tyne
Medicine—£5,595 from the MRC to provide continued support for research into the stimulation of human thyroid tissue via adenyl cyclase by the long acting thyroid stimulator under the direction of Professor R. Hall and Dr F. Clark; £5,812 (supplementary) from the North of England Cancer Research Campaign to provide additional support for research into the incidence of latent thyroid cancer in thyroectomies under the direction of Professor R. Hall and Dr F. Clark.

Neurology—£88,653 from the Muscular Dystrophy Group of Great Britain for research into neuromuscular disease under the direction of Professor J. E. Walton; £25,553 from the MRC for research into peptide hydrolase in normal and atrophying muscle under the direction of Dr R. J. T. Pennington.

Colleges

Berkshire College of Education
School of in-service Education and Research—£42,989 from the Department of Education and Science for a study of an institution of higher education undergoing major change; £9,500 from the Schools Council to establish a regional curriculum centre to support dissemination particularly in the field of humanities.

Watford College of Technology
Physics—£14,833 from the SRC for an investigation of the cavitation threshold pressures in a liquid between rotating rollers, leading to the study of industrial cases of printing inks and oils in the immersed and non-immersed cases, under the direction of Dr F. R. Young.

Forthcoming events

A small exhibition of book bindings from the Broxbourne Library will be on display in the Divinity School, Oxford, from September 15 onwards. It will include bindings dating from the fifteenth century and examples of modern English and French work.

* * *

A working exhibition of lace and embroidery will be held at Hatfield House, Hertfordshire, from September 23 to October 5. A varied collection of lacemaking accessories will also be in the exhibition which will be open

International Public Relations, 9 Dover Street, London.

* * *

The Institute of Contemporary Arts is holding the seventh Herbert Read lecture on "The art of healing" on September 4, 1975, at 6.30 pm, at its headquarters in Nash House, 12 Carlton House Terrace, London. The lecture sponsored by the Erasmus Foundation of Amsterdam, will be given by Dr Oliver Sacks. Admission 70p; members 50p.

Noticeboard is compiled by Patricia Santinelli

BOOKS

Seismic force of numbers

The University in Society, in two volumes
edited by Lawrence Stone
Princeton University Press/Oxford University Press, £4.75 each
ISBN 0 19 6904161 and 690416X

"Few fields are today more ripe for the application of modern research strategies and tactics, or offer greater promise of rich intellectual rewards, than the history of education." So articulated by Professor Stone, Dodge professor and chairman of the history department of Princeton, this credo inspired the Shelby Davis Cullom Center for Historical Studies at the university to devote its first-ever supported four-year seminar to cultivating this field. The harvest of the first two years (1969-1971) has now been gathered in these two volumes. The Lord of the reap has more than done his share, for in addition to editing the labour of the other 12 apostles, he has contributed an analysis of the size and composition of the Oxford student body from 1580 to 1910 that will make life very much easier for another faithful band of home-based scholars who are understood to be labouring on a multi-volumed history of that university.

For at Oxford, as elsewhere in Europe, numbers were, in his phrase "the seismic force". Declining after 1520 to such an extent that all the books in the university library had to be dispersed and Convocation had by 1556 even agreed to sell the bookshelves (*absit omen!*) they peaked up again so numerously that students had to be packed four to a room, new rooms had to be fitted under the roof-timbers and (at Exeter College) an entrepreneurial head porter even ran up a wooden shack on top of the college chapel. A 25-year slump followed, until between 1615 to 1639 admissions rose to a height never achieved again for another 120 years. And his account of that 120 years is so consistently hilarious that we can see why Oxford itself occupies a third of the two volumes. Poor puritan Cambridge (which led up to the state of affairs so soberly treated by James McPherson in the thirteenth and last section of the work) has only one expositor, and he with the modest theme of its relation to "the country" from 1560-1640. Oxford has three in addition to Professor Stone. But both Oxford and Cambridge come under the humane appraisive scrutiny of Dr Sheldon Rothblatt, the next best buy in the bunch.

Is this because it is the soft underbelly of the academic littoral that Professor Stone and his shock troops are attacking? The analogy comes naturally after Professor Stone's description of their collective purpose as "a series of tactical approaches to specific problems". Certainly the others, highly intensive raids on other portions of that academic littoral, offer nothing so exciting, unless it be the all too brief vignette of the universities in Navarre, one of which awarded three or four times the number of degrees than it had students; the other which could doctor a graduate in 48 hours, with knives being reserved for the subsequent feast.

Feasting, rather than fasting, was the rule in Tudor-Stuart plus ça reacquired by Wren, Hawksmoor, Gibbs and others. In such a Plerian spring of high spirits one group of profoundly Anglican undergraduates diners (that included young Jeremy Bentham) used to strip naked and turn themselves slowly before a high fire since as "unbelievers, atheists and deists" it was necessary to prepare for their future destiny.

It may have been safer at that home-from-home for honest Yorkshiremen—the Queen's College, Oxford—than it was at Wadham there Professor Stone himself [illegible] to protect the ever-increasing number of post-pubertal undergraduates from prostitutes. Indeed in 1825 a Bill "for the better preservation of the Peace and Good Order in the Universities of England" singled out these female night walkers as especial threats. So if dissent was to be contained by examinations (as Professor Rothblatt's fine essay suggests), sexual incontinence was to be sublimated by games and the oar was to replace the whore in the hands of the lusty graduate. Trinity had four boat clubs by 1827 and the first inter-university boat race was started by the son of the Master of Trinity, Cambridge, who was then at Christ Church. No longer did colleges (as in 1595) prohibit "the hurtfull and unscholarlike exercise of football and meetings tending to that end", but anything that led to "manly and wholesome" collegiate life was encouraged. "Don't rock the boat" became standard advice to a young man with ideas of change, and the most successful oarsmen were recruited for the expanding colonial civil service and the episcopal bench: blues for the blacks as they used to say later in the century. And for those who preferred a lazier pipe-smoking life of anecdotal recapitulation, blues were always in demand by other behavioural farms like preparatory or public schools. Even though intellectuals like Newman and the "Noetics" at Oxford, and the celebrated "Apostles" at Cambridge, preferred to talk and walk with their peers, there lingered in the mind of some dons a suspicion that they were up to no good. "Liberty", ruminated Gladstone (who in his day did much to open the pores of Oxford to the world), "was regarded with jealousy and fear, something which could not wholly be dispensed with, but which was to be continually watched for fear of excesses".

The almost suffocatingly white male atmosphere of the book is lifted by an amusing, sensitive and perceptive treatment of the 29 post-civil-war missionary colleges for freed men. Abolitionists and evangelicals were determined to turn the whole South into a New England: "a New South after the Puritan and perfect pattern" as one Boston abolitionist put it. But this time there were Pilgrim Mothers as well as Pilgrim Fathers: one student at Atlanta University "found the matron even more motherly than the president was fatherly". True a visitor to Shaw University (a Baptist Home Mission enterprise in Raleigh, North Carolina) found the teachers "were of the scrawniest, severest, primmest, ugliest, most forbidding New England type" but admitted that "a less cold, obtuse, self-reliant and determined set of people would be worried, badgered and mortified almost to death and be driven away in short order".

And these people had the courage to plump for coeducation in 22 of the 29 postwar missionary colleges (even the remaining seven included two pairs of coordinate colleges). Pietistic, moralistic and repressive these school marms may have been, but they were tackling a sub-nation that had been all but brutalized by the sins of slavers—licentiousness, dishonesty, cunning, theft and moral irresponsibility. Yet something was done, if not (as the white secretary of the American Missionary Society ruefully acknowledged in 1909) "overdone". Today, were he alive, he would rub his eyes to see that the gospel salvation army of New England marms is mediated by music from the New Orleans and Memphis vice dens.

It's a long traverse in time between late sixteenth century Oxford, when nearly one fifth of the entrants were under fourteen years old, and the modern American graduate school, where you can find them up to forty. What links them is this rise and fall of student numbers, a set of demographic phenomena so widespread and dramatic that, as Professor Stone rightly says, "much of the history of higher education is clearly going to have to be articulated around them". If that is what he is now busy about we can look forward with relish to the harvest of the next two years.

W. H. G. Armytage

Look for the librarian

Libraries in Higher Education
edited by John Cowley
Clive Bingley, £4.00
ISBN 0 85157 197 2

Emphasis on current practice in polytechnic libraries overrides the wider treatment suggested by the title. Polytechnic librarians have enjoyed the good fortune of being able to build up their libraries and establish their relationships with teaching colleagues during a period of rapid change when the latter were much too occupied with planning academic structures to interfere with library organization. Thus, so far, polytechnic librarians have been less troubled than university library staffs by those academics who expect to control the resources they use notwithstanding that, however experienced they may be in their own specialized subject fields, they are demonstrably amateurs in the area of modern library management and all that it entails. Most have not even begun to understand the difference between the library they used years ago as students and that which is now at their service. So this symposium which discusses contemporary polytechnic library practice and its further potential is timely if read by the right people—not only librarians but the teaching and administrative staff in establishments of higher education.

As a book composed of a collection of papers it has the common faults of overlap in subject matter and variability in style and quality. It suffers also because some of the essays were obviously written for another purpose and the subtitle theme "a user approach to service" is not strong enough to link them into unity. The text, which draws heavily on experience at the Polytechnic of North London, could profitably have made more use of the content of the many papers listed in the extensive bibliography. The absence of an index is inexcusable. Nevertheless, at this critical stage in development of polytechnics it is good to have discussion of library problems and their possible solutions, and John Cowley and his colleagues promote important topics like reader services, public relations and instruction in library use. They consider also what can be done towards building up better stocks which can then be effectively exploited by subject specialists. The information service these specialists can provide, though long known in industry, are new to academic libraries and "require a gradual change of attitude amongst academic staff involving greater confidence in library staff and less reliance on the old tradition of self-help".

Librarians and teaching staff could together learn much from these papers which ably demonstrate how each group has an interactive part to play in the more purposeful use of library materials and services.

Wilfred Ashworth

SAXON HOUSE Studies

Policy and the polytechnics
Pluralistic drift in higher education
Lex Donaldson, *London Graduate School of Business Studies*
This book provides both a balanced analysis of the polytechnics and an example of the use of organisational and political science concepts and methods in the evaluation of public-sector programmes.
£6.95 October 1975

From LEXINGTON BOOKS
Public and proprietary vocational training
A study of effectiveness
Wellford W. Wilms, *Centre for Research and Development in Higher Education, University of California*
Price to be announced December 1975

Education and employment
A fifteen-year projection of needs, policies and programmes
Russell G. Davis, Gary M. Lewis, *Harvard University*
Price to be announced November 1975

Student evaluation of instruction
Kenneth O. Doyle, Jr., *University of Minnesota*
In non-technical language, the author describes how to develop, study and improve student rating systems and provides a primer on data processing results.
£6.75 Available

The future of educational telecommunications
A planning study
George W. Tressel, Donald P. Buckelew, John T. Suchy, Patricia L. Brown, *Battelle Columbus Laboratories*
£6.50 Available

The sources of American student activism
James L. Wood, *University of California*
Evidence is presented showing the existence of structural strain and convolveness, the growth and spread of generalised beliefs, precipitating factors, mobilisation of participants for action, and the weakening of social control on campuses such as Berkeley.
£7.30 Available

Investment in higher education
Walter W. McMahon, *University of Illinois*
This comprehensive analysis of the origins of the current financial distress in higher education explores the potential sources of new growth of real investment in higher education.
£8.30 Available

For catalogue or further information please write to:—
SAXON HOUSE Studies, Dept. SS.173, D. C. Heath Ltd., 1 Westmead, Farnborough, Hants. GU14 7RU.

BOOKS

Nonconformist conscience

Nonconformity in Modern British Politics
by Stephen Koss
Batsford, £7.00
ISBN 07134 2981 X

In 1906 there were 73 Congregational members of Parliament, of whom 63 were Liberals. In 1935 there were 10, of whom the only Liberals were three Liberal Nationals. At Westminster, Congregationalists had been overtaken by Methodists, but it signified little, for political nonconformity had already become a "party of memory": if, that is, it had ever existed.

Stephen Koss's intention "is to examine, critically but respectfully, the fitful process by which Nonconformity ceased to operate as a viable and fairly homogeneous tactical unit in modern British politics". Such a study is long overdue and the author brings to it his characteristically easy competence. He has largely surmounted the exasperating lack of obvious sources bedevilling students of the subject and much of what he has found is new.

But here I must come clean, since I belong, by conviction as well as by birth, to the denomination whose numbers have been most reduced and whose political influence has been most dissipated. The book is wrong, or rather, it is wrongly based.

First Stephen Koss is too respectful. His *dramatis personae* demand a spacious treatment which they do not get, perhaps because modern historical discipline does not permit the grand gesture and the large view. Yet how else can justice be done to ministers (he will call them "divines") as variously gifted as R. F. Horton, the Arnoldian salvationist up in Hampstead, R. J. Campbell, grey in the City's Great White Pulpit, Leyton Richards, C. S. Horne, W. E. Orchard, who outclassed Lloyd George in fascination and even J. D. Jones who "kept the sweet shop down the road" in Bournemouth. The ministers are underplayed; so, to the greater benefit of their reputation, are the dissenting knights, even the dreadful Compton-Rickett, the Croydon coal merchant who saw himself as a philosopher novelist. But if such men are to be placed properly in context and so escape typecasting, they need to be overplayed. They need the treatment of a sermon—preferably one of Bernard Manning's.

There may be less partisan reasons for feeling that the book is wrongly based. Despite scrupulous qualification Stephen Koss is unable to escape from the straitjacket imposed by his treatment of nonconformity as a pressure group rather in the manner of the anti-corn law league. Seen thus it is inevitable that the story should be conveniently defined, with a beginning and an end. Yet it is by no means clear that the political nonconformity which Professor Koss describes really existed, other perhaps than between 1906 and 1910. As he himself suggests at the end of his book it was just a sort of Halley's Comet, "another phenomenon of the Edwardian age", as dazzling and deceptive as the rest. Of the statesmen best placed by temperament and upbringing to turn it to good account, Asquith never did and Lloyd George only did when it seemed to be the last available option. Neither was dazzled; only Lloyd George was deceived.

If this is so, then the book needs a different frame of reference. "There are", said the *British Weekly* in May 1907, "in England about eight million Nonconformists, and it is safe to say that ninety-nine out of *every* hundred voters among them support the Liberal party." But that is just what it was not safe for the *British Weekly* to say: take away the women and the youths and the men who were still disenfranchised, and how many were left? Certainly not enough to sway election results even assuming that enfranchised Free Churchmen were all Liberals. Which means that one must look carefully and in unexpected places for the fundamental attitudes which made the nonconformists influential rather than powerful. One must pay more attention to their infinite variety so as better to catch their common distinctiveness, for, if there is no such thing as a typical Methodist, none the less Methodism marks one for life. What was it, for example, which produced, within kindred denominations and a few miles and years of each other, an Arthur Mee and a D. H. Lawrence? Arthur Mee's *Children's Encyclopedia* and *King's England* and his Morley Horder house at Eynsford—this above all—show more of the texture of early twentieth-century nonconformity in all its gutless than might seem reasonable at first sight.

What it shows is rather different from the ranting puritanism on which Professor Koss too frequently relies: it also suggests that the implications of a seventeenth-century ancestry interfused with later revivalisms are less than clear-cut.

That leaves theology. When all is said by the politicians and done by the sociologists, men remain Free Churchmen because of their obedience to the call of God. Life is a response to that call, and they compart it at their eternal peril. Embarrassingly other worldly considerations of this sort make it inadequate, even for a good historian to regard nonconformity in modern British politics as a "case study in electoral displacement" and leave it at that. Bias, where candidly recognized, can be the historian's best weapon. Nonconformists had a conscience. But the tense is wrong: we still have one, and we know, ultimate, divine assurance, that we are right, libertarians that we are.

Meanwhile Stephen Koss has given us a good a book about part of us as we are likely to get.

Clyde Binfield

SUSSEX UNIVERSITY PRESS

Graduate Student Series in Physics
General Editor: Douglas F. Brewer

This new series of Physics books is designed to meet the needs of graduate students who are taking post-graduate courses for an M.Sc. or as part of the requirements for a Ph.D., providing useful introductory surveys of the direction current research is taking and its expectations.

THE SUPERCONDUCTING STATE
A. D. C. Grassie
Just Published: Illus. 144pp £6.00

COLOUR CENTRES AND IMPERFECTIONS IN INSULATORS AND SEMICONDUCTORS
P. D. Townsend and J. C. Kelly
Already available: 240pp. £5.00 (Paperback £3.00)

Politics of the presses

The Limits of Reason: The German Democratic Press and the Collapse of Weimar Democracy
by Modris Eksteins
Oxford University Press, £7.00
ISBN 0 19 821862 1

A newspaper is "a very sensitive barometer of the general economic situation". This contemporary view of the press in the Weimar Republic, while generally true at all times, is particularly relevant to Germany in the 1920s and early 1930s. Not only did the depression have a calamitous effect on the sales and advertising revenues of newspapers, but the structure of the German press made it very vulnerable to economic pressures during the years of crisis and in between. It was very decentralized with consequent low rates of circulation, and therefore was unable to assert an independent political influence. This weakness was reflected in the strong alignment between newspapers and particular economic interests and the habit with half the press of declaring a partisan preference. Crowning this tendency was the attitude to the press in Germany, where controversy rather than impartiality was considered the guiding motive in the newspaper world.

In spite of the politicized nature of the Weimar press, economic considerations took precedence over political ones in the policies of newspaper publishers, apart from strictly party organs. This is the conclusion reached by Modris Eksteins in his study of three publishing houses—Mosse, Ullstein and Sonnemann. With their newspapers like the *Frankfurter Zeitung*, the *Berliner Morgenpost* and the *Vossische Zeitung*, these publishers have been selected because they, more than any other, acknowledged support for the ideas of liberal democracy. By concentrating on a few case studies, the author also offers a further insight into the disintegration of parliamentary government in Weimar Germany. Although the intention of many editors was educative (in this instance, to promote democratic values), Eksteins wisely discards any attempt to measure the political influence of these newspapers and restricts himself to examining "the manner in which the viruses which paralysed the other institutions of Weimar democracy also afflicted the democratic press and rendered it incapable of fulfilling the political role which it had assigned to itself".

The examples chosen are apt because of the strong link between these publishers and the left-wing German Democratic Party (DDP), even to the extent of Mosse and Sonnemann's journalists playing a leading role in the founding of the party in 1918. This study illustrates the early disillusionment with the democratic camp with the party's failure to live up to expectations, the fatal combination of economic pressures from business magnates such as the transfer of ownership by the publishers of the *Frankfurter Zeitung* to I. G. Farben, the largest industrial complex in Germany and the impact of significant swings in public opinion, to the latter case the publishers in question began to dissociate themselves from the DDP once the party's electorate dwindled. The chief concern was that too close a link with a declining cause would harm newspaper sales.

This is a perceptive and useful book on an aspect of Weimar politics which apart from the work of Kurt Koszyk in German has received sufficient attention despite the intensive research achieved done on this period.

Geoffrey Pridham



Before bookmakers individuals met to lay bets between themselves—from "The Turf: Three Centuries of Horse Racing" by Roger Longrigg; Eyre Methuen, £3.95.

The cement of patronage

Politics in Argentina 1890-1930: The Rise and Fall of Radicalism
by David Rock
Cambridge University Press, £6.60
ISBN 0 521 20663 4

The theme of *Politics in Argentina* is clearly stated in the preface—it is "the political interrelationship between different social classes in Argentina during the mature phase of the primary export economy in the forty years up to 1930". The author asks essentially straightforward questions (not always a marked feature in studies of Argentine history). What was the social composition of the Radical party? How did it come to power and how did it maintain itself in office for such a long period of time? How strong were the trade unions? What role did foreign capital play in Argentine politics? The questions may be straightforward but the answers are far from obvious. The considerable merit of this book lies in its careful, detailed and convincing attempt to delineate the structure of Argentine's social, economic and political development in the heyday of Radicalism.

The Argentine Radical party was a curious political animal. It was a coalition, at least initially, of sectors of the upper class and middle class, yet it also sought good relations with labour. It had an extensive machinery of local parties and relied heavily on the use of state patronage. Its ideology was little more than crude nationalistic rhetoric, intended to offend no one. It was dominated by Hipólito Yrigoyen, a messiah to his followers, a charlatan to his opponents.

The Radical party can only be understood in relation to the development of Argentine society and the economy. Because the economy was growing more and more prosperous (apart from cyclical depressions) the Radicals could rely on extensive state patronage to cement their following. Because much of the electorate was composed of unenfranchised immigrant workers, the political base of the Radical party, the "dependent" middle class, was made even more electorally important. The Radicals could govern in times of economic boom without offending any social group. But its reliance on patronage, mobilization and a few gestures of social reform were inadequate in times of crisis. Somewhat feeble efforts to protect the workers could be jettisoned without much hardship to the party. But when the inter-war depression eroded Radicalism's popular base and rendered incompatible the interests of the oligarchy and the middle class, the Radicals were overthrown by the military.

The working class in Argentina became dominated by the Syndicalists, who at times associated with Yrigoyen's Radicals, but whose attitude to politics was more generally expressed in a syndicalist newspaper "Oh Politics! I hate you because you are vulgar, unjust, scandalous and charlatan; because you are the enemy of Art and Labour; because you serve as the pasture for every vain ambition and for every example of sloth". Rock's treatment of the working class is very thorough but he also pays considerable attention to the right, which showed an impressive ability to organize and mobilize and defeat weaker working class protest movements.

There is at times a tendency in this book to treat social classes and political actors—a little too often the middle class is depicted as if it were a homogeneous political party. The focus of the book's attention is very largely on Buenos Aires. It would have been interesting to have seen more of provincial politics (as it would also the army, and of foreign interests), but there is so much of interest in this fine work that such criticisms can only be very mild. Perhaps the author's final comments on the failures of Radicalism are too lenient. Given the social structure of Argentina at that time it is difficult to see any alternative governing formula that was both possible and an improvement. Moreover, the two decades following the First World War were not notable for the abundance of democratic and reliable governments in the world. Finally, let alone in Latin America, the author points out, the failure of the inter-war depression was decisive in the overthrow of Yrigoyen's second presidency and governments all over the world, some of them more reformist, many of them more populist, were the first victims of the collapse of the international economic system.

Alan Angell

BOOKS

Master of reduction

Beckett the Shape Changer
edited by Katharine Worth
Routledge, £4.95
ISBN 0 7100 8123 5

A writer's image changes in his lifetime. Samuel Beckett has long stood as the master of reduction, exploring the extremes of human deprivation in novels and plays whose language became progressively attenuated, each one seeming a terminus beyond which only silence lay. The author's legendary, hermit-like retirement intensified this aura of threatening silence. Yet Beckett is now in his seventieth year, a Nobel laureate. His sequence of hard-won, minimal works has accumulated until it stands as a rich and varied *oeuvre*, attended by critics and commentators for whom Beckett's lenser hints and occasional remarks have taken on canonical status. He now seems our last modern master in the classic mould, like his mentors Proust and Joyce.

Most of the essays in *Beckett the Shape Changer* originated as lectures for a London University extramural course. Katharine Worth's introduction emphasizes the accessibility of his writing and its prodigality, while warning against the esoteric, over-philosophical approach of critics such as Hugh Kenner. Perhaps there is too much protestation here? Kenner may well be accused, as Victor Sage does in this book, of seeing Beckett as a writer whose successive works are merely elaborations of a single philosophical statement. Yet many readers sense the kind of fixity to which Kenner addresses himself, and open-ended responsiveness to the work is not as easy as it sounds.

Beckett's message, after all, is one of pungent and often cynical nihilism. To explain may be to exorcize, as he says of his character Watt, but a certain quantity of critical exorcism is inevitable. John Chalker, for example, sees the nihilism as progenitor of comic and farcical attitudes, in the manner of Swift and Sterne. Katharine Worth herself shows how it fathers a dazzling theatricality. Several contributors, however, do look at Beckett's career as philosophical search. Philosophy can show us how Beckett reached his peculiar position, while performing an exorcistic function by suggesting that we do not need to share that position.

Charles Penke's essay illustrates this, with its lucid account of the major novels as a progressive and doomed descent into the self. But the tendency of some other contributors to present the Beckettian outlook as a shallow dogmatism to be taken on trust is only directly combatted by Martin Dodsworth, who argues that *Film* and *Eh Joe*, the master's excursions into cinema and television drama, fail because they demand an unearned and essentially religious response.

Dodsworth's astringency introduces a welcome, discordant note. Pride of place, however, goes to Barbara Hardy's fine essay on Beckett's fictional handling of the themes of art, love and nature. Professor Hardy deals boldly and directly with the essential Beckett, and her insistence on the familiarity, as well as the sardonic flatness, of his characters' dubious consolations" is critical advocacy at its best. As a whole, the symposium is valuable for bringing Beckett's full range, and especially his most recent work, into critical consciousness. If a fuller discussion of weaknesses was not to be expected, much is said in some of these essays about his strengths.

Patrick Parrinder

More works than life

Laurence Sterne: the Early and Middle Years
by Arthur H. Cash
Methuen, £15.00
ISBN 0 416 82210 X

This is a very honest piece of scholarship about a man whose life and work have been more inextricably confounded than most and whose reputation has suffered almost as much from the zealous subtleties of those who in our own time expose him to the microscopes of research as from the sanctimonious assaults of earlier generations. "One can only search diligently after such traces as remain, try to establish some 'facts', and do one's best to weave them into a story", writes Professor Cash, and when at page 197 (and any reader of *Tristram Shandy* will agree that page 197 is as good a page as any other) he finds it necessary to embark on a discussion of the books which provided Sterne's own mental furniture, he reminds us and himself with some severity that "the purpose of this biography is to throw light upon Sterne's work by the study of his life, not the other way round".

The documentary sources for a study of Sterne's life are meagre indeed—"a haphazard trail of letters, legal documents, political pamphlets, prejudiced memoirs, frivolous anecdotes"—and Professor Cash has been, for a couple of decades or more, resifting the evidence on site in Ireland, Cambridge and the city and county of York as well as in record offices and libraries. Other single-minded researchers, with Lewis Perry Curtis in the forefront, have preceded him for most of the way, so that he himself has found little that is positively new. He has instead given to old "facts" and theories a new consideration which is neutral and humane, and in this mood has written the story which he set out to write, displaying by the way a plausible mastery of matters military, political, ecclesiastical, economic and philosophical. Conjecture, if given rein, is never unbridled, and few readers will condemn a 30-page excursion on the 'Forty-five which, if it has little to do with Sterne, at least offers convincing proof that Dr Burton was not at all the size and shape of Dr Slop.

In sum, this is a well-organized book and its narrative, which an author less disciplined and more self-indulgent might well have muddled with too heavy a hand, runs with a lucid and leisurely fluency until at the very end the pace quickens, genius erupts, and with the publication of the first two volumes of *Tristram Shandy* Sterne and the reader set briskly off for London town. It is unthinkable that Professor Cash, though he abstains from promising a second volume, has, with the rest of *Tristram* and *A Sentimental Journey* yet to come, waved them goodbye for good.

This is not to deny that there are yet some solemn souls who will assert that one volume of a new biography of Sterne is more than enough, for it is a curious fact that of those who dislike Sterne many also somehow resent him. The rest of us will be grateful to Professor Cash for this lovingly objective biography and for the corrective and amplification it supplies to the work of those serious students (of whom it may still be unhappily necessary to repeat Thackeray was not one) who have preceded him. They will applaud as well the publishers who have sent this book into the world with a brave accutrement of decorative endpapers and illustrations, many of them unfamiliar.

J. C. T. Oates

Love's old sweet song

James Joyce
by Kenneth Grose
Evans, £2.50 and £1.25
ISBN 0 237 44815 7 and 44816 5

Joyce in Nighttown
by Mark Schechner
University of California Press, £5.50
ISBN 0 520 02398 6

Musical Allusions in the Works of James Joyce: early poetry through Ulysses
by Zack Bowen
Gill and Macmillan, £9.25
ISBN 7171 0757 4

Will the output of books about Joyce never grow less? Here are three more, and they are enough to glut the keenest appetite.

It is doubtful whether a new short introduction to Joyce is needed at all. Fine critical introductions, each of which made a valuable and original contribution to the understanding of Joyce's work were produced by Harry Levin (1944), S. L. Goldberg (1962), Anthony Burgess (1965) and R. M. Adams (1966); and there is W. Y. Tyndall's readers' guide and John Gross's primer in the Fontana Modern Masters series. Grose's addition to this crowded field of introductions is a disappointment. Most of the information is derived from the standard biographies by Ellmann and Gorman, and the critical comments are often commonplace and misleading. The contribution to Evans's Literature in Perspective series would not be it. Factual error abounds; and Grose's critical quality is revealed when he writes of *Ulysses*: "Until I was asked to teach Joyce I never found the time or the mental discipline necessary to read it; but now that I have done so, or possibly because I have done so, I am convinced that it is the most complete work of art of this century."

Mark Schechner is perhaps more a Freudian than a Joycean, and his *Joyce in Nighttown* is a detailed and rigorous Freudian interpretation of certain passages in Joyce's work, especially of the "Circe" episode in *Ulysses*, with revealing reference to the astonishing erotic correspondence (unfortunately refused publication by the Joyce Trustees) that took place between Jim and Nora Joyce in 1909. Schechner's chief shortcoming as a critic of "Circe" is his too literal reading of the text which leads him, for instance, to the absurd conclusion that Gerty McDowell is a prostitute. But, for all the dogmatic naïveté, this is a real contribution to the understanding of Joyce's mind.

Musical Allusions in the Works of James Joyce is a dreadful disappointment. Most of the musical allusions in Joyce are to songs; and a song has two essential elements, words and music. When Joyce alluded to a song, he alluded to its music as well as to its words; and the full flavour and meaning of the allusion cannot be had from the words alone. The mind's ear must be able to *hear* the treacly sentiment of "Love's old sweet song", and the precisely apt songs that are sung in "Sirens", or half the flavour, half the point, is lost. Although Bowen has produced an interesting commentary on the words, he rarely prints or even refers to their tunes. Even the words are given without any system of reference which would enable the reader to look up their tunes (or their sources) for himself. What we have therefore is simply another allusion book, to set beside Thornton and Gifford; and if we want to find out more about music in Joyce we must go back as before to the pioneering work of Hodgart and Worthington, and look up the tunes for ourselves.

Unbinding meanings

Troubadours and Eloquence
by Linda M. Paterson
Clarendon Press: Oxford University Press, £9.00
ISBN 0 19 815711 8

Dealing with five troubadours only and with only a part of their output, this book is not as comprehensive as its title suggests. The five troubadours—Marcabru, Peire d'Alvernhe, Giraut de Bornelh, Raimbaut d'Orange and Arnaut Daniel—exemplify in some of their poems interesting and significant attitudes to style and method of composition, part of the meaning of the "eloquence" of the title. Anyone who has read the famous *tenso* in which Giraut de Bornelh and Raimbaut d'Orange discuss poetics will be aware of the existence of the *trobar clus* and the *trobar leu*, the closed or hermetic manner of composition and the light or easy manner of composition. Dr Paterson sees the *trobar clus* as originating with Marcabru who was imitated by later poets and sees the hallmarks of this style as being not merely deliberate obscurity, but an awareness on the part of the poet that his work will be understood only by a small élite, a gradual unfolding of the theme of the poem, and the "binding together of meanings through the figurative use of words".

The *trobar leu*, which Dr Paterson thinks may have been invented by Giraut de Bornelh (as he was the first to formulate a definition of it) is, generally speaking, opposed to the *trobar clus*. Poems written in this style should be capable of being understood by all, should use pleasing sounds and should avoid words with multiple meanings.

Dr Paterson feels attention has been concentrated too much in the past on *trobar clus* and *leu* and adjusts the balance by considering the *trobar brau* and the *trobar natureau* associated with Marcabru, the *vers entiers* of Peire d'Alvernhe and the *trobar ric*, *prim*, *car* and *ric*. Definitions of all these styles and an interesting contribution to the continuing discussion on the distinction between *vers* and *chanso* will be found in this detailed and carefully researched work.

Arnaut Daniel has long been seen as one of the most difficult of the troubadours although Ezra Pound went some way towards explicating certain of his poems. Paterson continues the process with an interesting analysis of the definitely *clus* sestina, *Lo ferm voters*. She sees the poem as indicating a movement from the plane of physical love towards *fin'Amors*, possibly even to spiritual love: ". . . the rhyme words, by their change of meaning and association, are the means of unfolding the *razo* (i.e. theme) . . .". Dr Paterson possibly overstates her case here and there, but how welcome to have a coherent view of this poem.

The troubadours' own pronouncements on style and method of composition are naturally archaic and one wonders to what extent a modern critic analysing their poems should use their terminology. Dr Paterson's critical vocabulary scarcely goes beyond that of the troubadours' themselves and although meaningful for the most part is rather old-fashioned. Likewise, her descriptions of sounds owe nothing to phonetics: she writes of "tight, small sounds", "tight, clipped sounds", "harsh, biting sounds", "rough, anti-lyrical sounds", "rough" and clenched sounds". This is surely very subjective: in fact we find the verb *cisclar* in two lists on the same page doing duty both as a "tight, clipped sound" and as a "harsh, biting sound". On this same page we are also told that "Like Giraut, Raimbaut uses diminutives to suggest smallness". Obviously they both knew what diminutives were for.

This book is indeed what it sets out to be, an extensive treatment of the variety of styles employed by certain important troubadours in some of their more significant poems. However, one still waits for a critic with the poetic insight of Ezra Pound and the erudition of Dr Paterson to give complete satisfaction.

T. O. Jones

Reviewers

Among this week's reviewers: Professor W. H. G. Armytage is professor of education at the University of Sheffield and author of several books on the foreign influences upon English education. Wilfred Ashworth is librarian of the Polytechnic of Central London. Alan Angell is a lecturer in Latin American politics at Oxford and author of "Politics and the Labour Movement in Chile". Geoffrey Pridham is in the department of politics at Bristol University. Clyde Binfield is in the department of history at the University of Sheffield and has written "George Williams and the YMCA: A study in Victorian social attitudes". J. C. T. Oates is a reader in historical bibliography at Cambridge and a trustee of the Laurence Sterne Trust. Patrick Parrinder is in the department of English at Reading University.

SUBLIME AND GROTESQUE
a study of FRENCH ROMANTIC DRAMA
W.D. HOWARTH

French drama of the Romantic period has long suffered from academic neglect. Both in France and abroad, scholars have been reluctant to take serious interest in this subject, with the result that there exists no thorough critical study of it seen as a whole. However, the rise of Romantic drama is of particular interest and importance both in the history of French literature, and in the development of the theatre. Professor Howarth's book shows how French Romantic drama stemmed from the social and literary climate of the period, and was influenced by the material conditions in the theatre of the day. The work also goes beyond a purely historical approach, and evaluates the plays critically, from a theatrical as well as a literary point of view.

The book is illustrated with contemporary pictures of scenes and characters from the plays, and is provided with two particularly valuable appendices: a chronological list of plays from 1827 to 1852, and a list of the roles played by the principal actors over the same period.

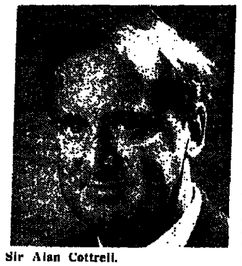
£12.75

Harrap Books
182-184 High Holborn, London WC1V 7AX

BRITISH ASSOCIATION

Extracts from speeches delivered at the annual conference, held at the University of Surrey

Science and the national economy



Sir Alan Cottrell.

This country's economy has been weak for well over a decade now. But the events of the past two years —the oil crisis, the miners' strike, the investment famine and galloping inflation—have changed the whole scale of the problem. A lingering and pernicious anaemia has suddenly turned into a raging illness which threatens acute organic failure.

Many people throughout the country now, while generally looking to the Government for leadership, ask themselves what can be done to help protect the country from economic collapse and help restore its strength. And here in the British Association it is natural to ask what part science can play in this, taking "science" in this context to mean both science and technology.

Science, working through the initiatives of industry, is today already providing the national economy with its greatest blood transfusion of recent times, one that in the opinion of most Government ministers is quite likely to get us through the crisis if we can only hold on until it begins to have its invigorating effect. I refer of course to North Sea oil, a geological discovery.

Apart from this shining exception, science generally is not able to do much for the economy at the present time. This is no fault of science itself, however. Science can create opportunities for industrial and economic progress and is doing so today as prolifically as ever. But scientific miracles do not become economic miracles of their own accord.

For this, there have to be great new industries set up, to turn ideas into tangible goods, and this calls for huge investments of men, money, and managements. And this is the difficulty. The climate of circumstances in the country today is all against such ventures.

In the face of too many discouragements, the necessary ingredients of investment finance, commercial drive and industrial confidence are simply no longer there, in most cases.

When seeds scattered on barren ground fail to grow, the wise gardener does not change his seed merchant but tries to improve their soil, in his efforts to increase their contribution to his garden economy.

It is the same with science and the national economy. We can best discuss the problems of the scientific contribution by considering, not science itself, but the industrial environment in which its seeds are expected to grow.

This brings us straight into the general questions of the condition of industry and especially of the relationship between Government and industry. It is here that things have mainly gone wrong.

Successive Governments have failed to create the stable and encouraging relationship with industry—especially manufacturing industry—that is required to enable this industry to thrive, become stronger, and better able to earn the country's keep in world markets.

What could science do, if the national environment became favourable? Here we recall again that the new beam of hope on the economic horizon today, our one shining hope for the future, North Sea oil, is the fruit of scientific discovery.

This discovery was made not by ministerial declarations, or White-hall memoranda, or trade union negotiations, or economic wranglings, but by geologists' explorations using modern scientific techniques. While others give us the sound and fury, science gives the substance of economic improvement.

Let us here also recall the agricultural improvement of this country, which has raised the output of home-grown food by more than 70 per cent during the past 20 years, mainly through the practical applications of science and technology, at a time when the country has been losing 50,000 acres a year of agricultural land for roads, houses, and so on.

Given a real government determination to make practical improvements, our scientifically modernized agricultural industry could in a few years grow all our domestic needs for non-tropical foods. This would have an excellent effect on our balance of payments, as well as reducing the burden of Britain's demands on the world's increasingly precarious food supplies.

But what about manufacturing industry, which is where the problems I have been discussing mainly lie?

Here is a huge sector of the national economy, responsible for about one-third of our total output, but in such a state, after a decade of having a ministry of its own, that half of what we import now consists of manufactured goods which we could easily make ourselves. If this industry were truly regenerated, to make it more buoyant, efficient and competitive, science would quickly and naturally find its opportunities, there, to help its technical advancement and so to contribute to the national economy.

The most direct and immediate way to set all this into motion would be to reduce taxes on the production sector of the national economy, compensating this as necessary by an increase on the consumption sector. This would stimulate industrial investment and open the way to modernization and scientific improvement.

The required change is a large one. The output of manufacturing industry at present amounts to about £20,000m a year. The lifetime of a given line of manufactured product, before it becomes technically obsolete and unsaleable, is on average about 10 years.

This means that, each year, £2,000m pa of *new* product sales have to be generated. In other words, investment in the development, manufacture and marketing of new products has to be large enough to create £6m additional sales of new products every day.

Efforts as great as this can, I think, be brought about quickly only through a change in the taxation system. Such an investment from government, for example through the National Enterprise Board, could have a useful pump-priming effect, provided it was directed towards technically promising and commercially sensible ventures, and its motive was industrial improvement pure and simple.

All this is surely an entirely proper function for a Department of Industry whose duty is plainly to improve the efficiency and competitive strength of the industries in its care.

If the wrongs of sensibly directed industrial investment fails to take place, the contribution of science to the national economy is barely worth serious discussion. There are some useful things science can do in making existing things work better and last longer —the practical application of scientific knowledge about corrosion, lubrication and plant reliability, for example. But, so far as the whole national economy is concerned, science can only be an assistant, not a principal.

Its contribution is highly vulnerable to factors which lie outside itself. And of these, the outstanding one is the general attitude of government to industry. We desperately need the Government to give genuine first priority to helping industry earn the country's living.

Alan Cottrell

The author is Master of Jesus College, Cambridge and formerly Professor of Metallurgy at the University of Cambridge.

Biochemistry departments do good job

Biochemistry departments in British universities do an important job well. Compared with other countries, we have had our priorities right even though we could do even better in performance.

What worries me is that there seems to be so little understanding of what we are trying to do, and of the merits of our way of doing things, among those who influence affairs in our country.

If we are not careful we shall end up with universities which are as worthless as are those in so many parts of the world.

I would argue that universities have a dual role, to discover new knowledge and to hand this on to their students. If this be so then it is clear that university departments, quite apart from their teaching roles, have a duty to undertake research. Not everyone, however, seems to share this view so that it is often asked whether the research role is really necessary, and could not the departments merely concentrate on their teaching role.

According to this view the research would be done in specialized research institutes either in this country or abroad and the teacher's role would be that of an interpreter. A short visit to a department that either through choice or necessity has accepted this interpretation of its function quickly convinces one that this concept is fallacious.

Unless the teaching is conducted in an atmosphere of research it is simply not possible for the teachers to keep up to date, to read the research journals intelligently and to assess the relevance for the subject as a whole of what is reported in the literature. In the absence of a research atmosphere the teaching is merely the recitation of textbooks and the students have no feeling for the excitement of the subject.

This is really essential for the satisfactory teaching of advanced students. I should emphasize that I do not say that one cannot be a good teacher if one does not do research, I merely say that one must teach in a community that is conducting research.

Before leaving the matter of research and teaching I would like to say something about postgraduate research students. I certainly take the view that the first job of a university department so far as the PhD programme is concerned is the training and education of research workers. I believe that this is what the country wants and what industry needs.

The demand for more course work in the PhD programme stemmed in part from the system in the United States of America where they tend to believe that you only have to send a student to a course and he will immediately be "improved". It is interesting to note that the amount of course work in American PhD programmes is being markedly reduced so that before long the two "systems" will be very similar.

There are those who believe that our students should attend mini courses on economics and management but I am sure we do well to resist these ill thought-out schemes. It is far better that industry itself should take such remedial action as it desires after employing our PhDs. If we set up such courses not only would we have difficulty in persuading our students to attend at the expense of their research but industry would tell us that the course contents were no good.

What about the research activities of the staff? We have already justified these on the grounds of teaching at both the undergraduate and postgraduate level. Thus it is clear that they must do research but what do they contribute to the total research effort of the country, especially in medicine?

We derive our research funds from two general sources (1) internally from the university from UGC funds and (2) by grants from the research councils and the voluntary organizations. There are those who maintain that there is no need for any of the university funds to be directed to research and that the only way to maintain standards is for all the funds to be competed for on a national basis.

I feel that the best situation is the intermediate one. There should be limited funds for the on-going research of the department which should take care of student projects, research students, new members of staff and those who are developing new lines or lines which are at present out of fashion.

From our viewpoint research council support is essential if we are to perform our dual function of discoverer and informer. My point is, however, that we cannot effectively put ourselves in the position to receive these valuable grants unless we have enough money from the university to keep the organization ticking over. My fear is that in the present straitened circumstances of the universities the internal sources of finance will dry up and so prevent us from benefiting from the external sources.

Finally I would like to say something about contract research. This was a matter that was much discussed as a result of the Rothschild Report but today in this country we hear little about it. No doubt the MRC and the SRC are pursuing the modified Rothschild proposals but so far we have not been much affected in the universities. The opposite is the case in the USA as I learnt on a visit in June-July this year. There the research contract is having a marked effect and I believe is a cautionary tale.

During the 1960s we all admired the research grant system which our American colleagues set up and which was so effective in the encouragement of excellent research. The essence of the grant system was that the individual scientist made application to the donating agency to allow him to do a particular piece of work.

The grant system is being gradually replaced by the contract. This means that the donating agency decides what research needs to be done and puts it out to contract. The bids are considered and the contractors chosen.

This leads to a lot more bureaucracy since someone has to chair at six-monthly intervals on the progress of the contract. What is worse, however, is that the scientists no longer have the major say in the nature of the work done which is meant to be directed to specific applications. The net result is often that the scientist at the bench is pursuing research that he does not believe will contribute either to the advancement of fundamental discovery in his subject nor to the overall aims of the donating agency. Money for grants is now, however, so tight that the university scientist has to bid for these contracts and to survive.

I submit that the contract research system is having a baleful distorting effect on the work of university biochemistry departments in the United States of America. What is more many of the staff are so fearful for their future that they neglect their teaching. They know that their future promotion depends on their ability to attract contract money and hardly at all on their teaching activities.

As chairman of the committee on education of the International Union of Biochemistry I am disturbed by the appalling state of many of the universities of the world. Not even those in affluent societies such as the United States of America and Germany are free from criticism.

So far we have done comparatively well and our priorities have been right. In particular the departments of biochemistry have done a fine job with good students and excellent staff. Our problem is to hang on to these good things and to encourage our existing departments and avoid the mistakes of setting up numerous departments of biochemistry in our polytechnics which cannot possibly be sustained. In other words recognise what is good and hold on through the storms of the next few years so that we do not throw away the good with the bad.

P. N. Campbell

Professor Campbell is head of the department of biochemistry at Leeds University.

Organization of strategic research

What is the relation of fundamental research to practical application, and in the light of the answer to that question, what sort of organization should there be for the support, promotion and initiation of research?

One view is that there is little or no connexion between fundamental scientific research and innovation in practical situations. This was the conclusion of the Manchester group in relation to certain industrial examples.

If that is true, and if it were also true for all fields of science, it would not be illogical to hold the view that "applied" research and "fundamental" research (deliberately put these words in quotes) can be practised and organized quite separately by quite different methods.

There is an opposite view held by, among others, all the research councils: the Medical Research Council has acted on that opposite view ever since it started as the Medical Research Committee in 1913. This opposite view stems from two tenets; there is no clear acceptable distinction between "fundamental" and "applied" research (which of course does not mean that there is no distinction between research and application) and in as far as they can be distinguished, they are interrelated.

The most realistic definition is probably related to motivation and point of view; thus a clinician may undertake a study for his own interest and council fund it because of its use; conversely a biologist may believe his work is justified by a hoped-for application while it is funded by a more sceptical body solely for its contribution to science.

The interrelations between more "fundamental" and more "applied" are undoubtedly complex. In some situations such as those I have quoted, or, for example, between the discovery of hormones and the treatment of hormone deficiencies, the link is quite obvious. It may be argued that such examples are the exception rather than the rule and that most practical advances arise from other and often chance events.

To recognize the significance of such events, however, you must have background knowledge. Thus it is absolutely clear that we would never have had penicillin or sulphonamide before Pasteur, and the development of bacteriology, or many of the nervous system drugs without a knowledge of the physiology and pharmacology of transmission of signals across the junctions between nerve cells. Moreover, the full implications of such events are more likely to be appreciated if there is a close association of different approaches and skills within a research organization.

Much research, at any rate in biology, is directed towards better management rather than dramatic ling of normal function and how to approximate to that function despite failures in the system. Good management of land requires good understanding of normal ecology and the consequences to be expected of a disturbance of a system and hence how bad consequences can be mitigated.

The understanding of the normal processes of nature, whether it be the function of an organism such as man, the ecology of land areas or fisheries, or the needs of crops, or by its very nature fundamental knowledge as well as fundamental to good management of the sick, of our natural resources and of agriculture.

For these reasons each of the MRC's boards is responsible for a range of practical objectives and covers all research related to its field from the most "fundamental" to the most directly applicable. Research teams are usually multidisciplinary and undertake both "fundamental" and most "applied" work and it has been the council's practice from its earliest days that highly practical objectives or problems should be given to the members of staff even though the main work may be in a long-term speculative area.

Though different in many ways the organization of NERC and ARC is, broadly speaking, based on the same philosophy.

John Gray

Classified Advertisements

Index to Appointments Vacant, Wanted and other classifications

Appointments vacant
Universities
Fellowships & Studentships
Polytechnics
Technical Colleges
Colleges and Institutes of Technology
Colleges of Education
Colleges of Further Education
Colleges and Departments of Art
Administration
Overseas
Government
Industry
Adult Education
Librarians
General Vacancies

Appointments wanted

Other classifications
Announcements
Exhibitions
For Sale and Wanted
Courses
Holidays and Accommodation
Typing and Duplicating

Universities

The British Council

King Abdul Aziz University, Jeddah, Saudi Arabia

Course Team for a Programme of Communication Skills in English

THE PROJECT : The British Council has been asked to establish a Language Service Centre at King Abdul Aziz University to develop English Language Communication Skills for 3rd/4th First Year students in the Faculties of Medicine and Engineering. The programme will run initially for one year and will be carried out in association with various university departments in Britain and with the Council's English Teaching Division in London. It will require a wide range of expertise in the teaching of English for scientific and technical purposes, and other opportunities for the preparation of teaching materials.

THE POSTS : 3 Course Tutors in Technical Study Skills are required.

THE APPLICANTS : Candidates, men only, must be graduates, preferably with TEFL qualifications. Experience in Mathematics or Science Education will be an additional recommendation.

SALARIES : £4,969-£5,524 pa.
All salaries are tax free. They may be increased for candidates with special qualifications and experience.

BENEFITS : Free furnished accommodation ; overseas and children's allowances ; passage-paid annual home leave ; outfit and baggage allowances ; travel costs. One-year contracts, possibly renewable.

Please write, briefly stating qualifications and length of appropriate experience ; quote reference 75 AU 60-86 for further details and an application form to The British Council (Appointments), 65 Davies Street, London W1Y 2AA.

UNIVERSITY OF IFE NIGERIA

Applications are invited for the following posts :

(1) PROFESSOR IN THE INSTITUTE OF ADMINISTRATION
In any of the following fields : Public Administration or Management ; Development Economics ; Public Finance and Financial Management ; Management Accounting and International Relations. Applicants must have a good honours degree plus postgraduate degree(s) in the relevant field and considerable experience in teaching, research and administration.

(2) SENIOR CONSULTANT/CONSULTANT
In each of the following areas : Tax Administration ; Personnel Management ; Financial Management and Local Government Administration. Applicants must be graduates or professionally qualified persons with considerable professional practical experience.

The Institute is an administrative staff college to the governments of Nigeria as well as a graduate school of public administration. The duties of the appointees will be to teach, carry out research and provide advisory service to Governments, Corporations and other state-owned Companies, and carry out consultancy assignments in his field of specialization.

Salary scales :

Professor/ Senior Consultant	N8,730 to N12,411 per annum (£6,021 to £8,560 per annum Sterling)
Consultant	N6,895 to N8,730 per annum (£4,755 to £6,021 per annum Sterling) (£1 Sterling = N1.10)

The British Government may supplement salaries in appropriate cases. Family passages, medical and superannuation scheme, various allowances and regular overseas leave. Detailed applications (two copies), including a curriculum vitae and naming three referees, should be forwarded by airmail, not later than October 3, 1975, to the Registrar, University of Ife, Ile-Ife, Nigeria. Applicants resident in U.K. should also send one copy to Inter-University Council, 90/91 Tottenham Court Road, London W1P 0DY. Further particulars may be obtained from either address.

AUSTRALIA
UNIVERSITY OF SYDNEY
LECTURESHIP IN BIOMETRY
DEPARTMENT OF AGRICULTURAL BOTANY

Applicants should be qualified in one or more of the following fields—biometry, statistics, biomathematics or mathematics or statistics. The successful applicant will be required to lecture and to undertake consultation in the design of and analysis of experiments. Opportunity will also be available for research.

The position is permanent and may be filled for three years in the first instance subject to satisfactory performance during that time, or in certain cases for a longer term.

Salary range: $A11,658 to $A16,645 per annum.

Applications including curriculum vitae, list of publications and names of three referees may be addressed to the Registrar, University of Sydney, N.S.W. 2006, Australia, from whom further information is available. Information is also available from the Association of Commonwealth Universities (Appts.), 36 Gordon Square, London WC1H 0PF.

AUSTRALIA
LA TROBE UNIVERSITY
Melbourne

LECTURER/SENIOR LECTURER IN CLINICAL PSYCHOLOGY

This position is within the research clinic in the Department of Psychology. Duties will include teaching and supervision of undergraduate and postgraduate students in clinical psychology. A degree, professional or research, in psychology and clinical experience in clinical psychology with a behavioural approach and community psychology are desirable.

Salary: Lecturer $A11,658 per annum rising by $A870 to $A15,645 per annum. Senior Lecturer $A16,644 to $A18,644.

Further information and application forms are available from the Association of Commonwealth Universities (Appts.), 36 Gordon Square, London WC1H 0PF, or from the Registrar, La Trobe University, Bundoora, Victoria, Australia 3083.

Applications close on 30 September, 1975.

AUSTRALIA
AUSTRALIAN NATIONAL UNIVERSITY
FACULTY OF ARTS

Appointments to the following posts in the Department of Prehistory and Anthropology will be made if sufficient funds become available from the University for the 1976-78 triennium. The University hopes that the situation will be clarified by about November 1975. It is hoped that the appointees will be able to take up duty early in 1976.

RESEARCH OR LECTURER in ANTHROPOLOGY. Applicants should possess, or be likely to possess, a Ph.D. degree in anthropology or archaeology and have a specialist field (techniques or area) for research.

LECTURER in PREHISTORY. Applicants should be experienced practitioners of archaeological field techniques and have a specialist area of research.

Closing date: 13th October, 1975.

Salaries : Reader $A20,208 per annum ; Senior Lecturer $A16,644 to the other posts with initial salary according to qualifications and experience within the range $A11,658 to $A15,645 per annum, current review may raise $A1,610 pa.

Other conditions : Tenure : Reader or Senior Lecturer, six years ; Lecturer for three years with possibility of renewal to six years. Provision for re-appointment after retiring age of 65 years.

Passages, travel expenses and removal assistance with housing in accordance with University rules. Superannuation benefits apply.

The University reserves the right to make an appointment or to make an appointment by invitation at any time. Applications (two copies) should be addressed to the Registrar, The Australian National University, Canberra, A.C.T. 2600, Australia, from whom further particulars may be obtained.

AUSTRALIA
UNIVERSITY OF WESTERN AUSTRALIA
Perth

Applications are invited for appointment to a CHAIR IN ENGLISH. This is one of two Chairs in the Department of English, the other Department in the Faculty of Arts. The existing establishment of the Department includes two Professors, two Associate Professors, six Senior Lecturers, eight Lecturers and eight Senior Tutors, and about 1,350 student enrolments. It also has substantial Honours and postgraduate schools. The other Chair in the department is held by Professor A. M. Jones, whose research interest is Middle English Literature. The University wishes to appoint a person with interests in any area of post-Medieval English Literature.

The salary for a Professor is $A25,650 per annum. Benefits include superannuation similar to F.S.S.U., fares to Perth for appointee and dependent family, removal allowance, study leave and long service leave and housing loan scheme. Further information including conditions of appointment may be obtained from the Staffing Officer in the University, or from the Secretary General, Association of Commonwealth Universities (Appts.), 36 Gordon Square, London, WC1H 0PF.

Applications in duplicate stating full personal particulars, qualifications, experience and the names and addresses of three referees should reach the Staffing Officer, University of Western Australia, Nedlands, Western Australia 6009, by 10 October, 1975.

AUSTRALIA
AUSTRALIAN NATIONAL UNIVERSITY
FACULTY OF SCIENCE
CHAIR OF PSYCHOLOGY

Applications are invited for appointment to the Chair of Psychology which becomes vacant in July, 1976, on Professor Ross's retiring age. Provision to accept appointment as Deputy Vice-Chancellor in the University of Adelaide.

Professor C. A. Gibb will relinquish the Headship of the Department in November, 1975. It is likely that the appointee to the vacant Chair will therefore be Head of the Department for an initial period of some years.

Salary : Professor is $A23,650 per annum. Appointment is to retiring age (65 years).

Reasonable travel expenses are paid and assistance with housing is given for an appointee from outside Canberra. Superannuation benefits are available.

The University reserves the right not to make an appointment or to make an appointment by invitation at any time.

Further particulars may be obtained from the Association of Commonwealth Universities (Appts.), 36 Gordon Square, London WC1H 0PF, with whom applications close on 30 October, 1975.

AUSTRALIA
MACQUARIE UNIVERSITY
Sydney

Applications are invited for the following appointments :

CHAIR OF ACCOUNTING AND BUSINESS STUDIES
in the School of Economic and Financial Studies :

The University offers a full sequence in accounting at the undergraduate level for the B.A. degree and for the Honours Degree of B.A. in addition, Course work programmes for a Graduate Diploma in Accounting and a Master's degree have been approved, and applications for the initial intake of students to these facilities are provided for postgraduate research degrees and accounting courses are provided for the Master of Business Administration programme.

Applicants should be highly qualified academically and have had extensive teaching and research experience in accounting. They should have an authoritative knowledge of contemporary accounting theory and application. A commendably enterprising approach to the teaching of accounting and related disciplines is currently need, and it would be advantageous if applicants to be highly qualified in economics or management information systems. The professor will be concerned in organizing teaching and research in the areas of accounting, management economics, business finance and business law.

The Chair has become vacant following the resignation of Professor A. R. Barton who has been appointed the Chair of Accounting at the Australian National University. A second Chair of Accounting has been approved and will be advertised in due course.

CHAIR OF CHEMISTRY
in the School of Chemistry

The School of Chemistry presents an integrated view of Chemistry as a whole. It is therefore seeking a candidate who, in addition to a commendable record in research, has demonstrated interest in the research and teaching over a fair range of the subject.

It is hoped that the successful applicants will be able to take up appointment in the first half of 1976 at a salary within the above-mentioned Chairs as soon as possible.

Further details of the responsibilities and framework within which the appointees are to be made are included in the additional information available to applicants.

The University reserves the right to fill any position by invitation.

The salary for the Chairs will be $A23,650 per annum.

Dr S. W. Cohen, formerly Deputy Vice-Chancellor, will be in the London district September and October and will be available to discuss the positions with interested persons. Persons interested in these positions should contact the office of the Association of Commonwealth Universities (Appts.), 36 Gordon Square, London WC1H 0PF, for details.

Further information about the University and advice regarding the method of application may be obtained from the Secretary-General, Association of Commonwealth Universities (Appts.), 36 Gordon Square, London WC1H 0PF, with whom applications close on 30 October, 1975.

AUSTRALIA
MACQUARIE UNIVERSITY
Sydney

SENIOR LECTURER/ LECTURER IN ACCOUNTING

Applications are invited for appointment as Senior Lecturer/Lecturer in Accounting in the School of Economic and Financial Studies.

Preference will be given to candidates with interests in the fields of financial accounting, management accounting, or information systems. Candidates should possess an honours degree, and for Senior Lecturer status, preferably a higher degree as well.

In addition, university teaching experience in any of the previous areas would be an advantage.

Salaries will be within the ranges $A18,048 to $A20,208 per annum (with annual increments to $A18,744 per annum) for a Senior Lecturer; $A11,658 with yearly annual increments to $A15,645 per annum for a Lecturer.

Further information about the University and advice regarding the method of application may be obtained from the Association of Commonwealth Universities (Appts.), 36 Gordon Square, London WC1H 0PF, with whom applications close on 3 October, 1975.

BERKSHIRE

IMPERIAL COLLEGE OF SCIENCE AND TECHNOLOGY

Field Station, Silwood Park, Ascot

WARDEN/ADMINISTRATIVE OFFICER

Applications are invited for the above position at the outset of this field station, the holder of which is responsible, to the Director, for all aspects of its administration, including management of two student residences, and for the oversight of the works and general services. A scientific background and teaching experience will be an advantage.

It is hoped that the successful applicants will be able to take up appointment in the first half of 1976 at a salary within the range £4,902 to £5,301 ; together with accommodation in detached residences on the University estate, especially in Biology or Agriculture, would be an advantage.

Further particulars may be obtained from Mr. J. Davies, C.B.E., Secretary, Imperial College, London SW7 2AZ, to whom applications (six copies) should be sent by 30th September.

BRISTOL

THE UNIVERSITY

OFFICE OF THE REGISTRAR AND SECRETARY

Applications are invited for the post of SENIOR ADMINISTRATIVE ASSISTANT. Candidates should be graduates. Extensive but not necessarily administrative experience is not essential.

The duties of the post are primarily to give personal assistance to the Registrar and he will provide good training and experience for a candidate seeking a career in University administration.

The salary for a fixed period of two years in the first instance, with possibility of renewal in consideration of vacancies at that time, will be on the scale for an Assistant Registrar with no maximum age limit. Appointment will be normally concerned with testing on incremental scale from £3,300 to £4,302 on appointment, rising to £4,902 by annual increments of £200 to £5,300 and £100 to £5,500 (under review).

Applications (two copies) should be submitted not later than 30th September, 1975, to the Registrar, Senate House, Bristol BS8 1TH, from whom further particulars may be obtained.

EAST ANGLIA

THE UNIVERSITY

NORWICH

Applications are invited for the post in ACADEMIC HISTORY in the School of Modern Studies. One post will be on a lecturer scale, the other on a senior lecturer/reader scale. Both posts are for teaching and research in history and the history of Europe in the 19th century. A person interest in German history or Commonwealth history for one of the posts, and an appointee from North America for the other, would be welcome. Applicants will be invited to indicate which post they would prefer to take up. Their duties will begin in October 1976 or January 1977. The successful applicants will be required to take up their duties at any time between the first day of January 1976 and the first day of January 1977, as may be arranged.

Lecturer scale £2,118 to £4,050, second Assistant scale £4,707 to £5,976. Scales under review.

Details from Establishment Officer, University of East Anglia, with whom applications (seven copies) should be lodged with names and addresses of three persons to whom referees' reports may be made, should be lodged not later than 15th September, 1975.

MANCHESTER

THE UNIVERSITY OF MANCHESTER INSTITUTE OF SCIENCE AND TECHNOLOGY

CHEMICAL ENGINEERING

A vacancy exists for a postdoctoral research ASSISTANT, for one year in the first instance, to succeed Dr. Hanratty in considering the response of various kinds of sensors to unsteady flow. Applicants will be mainly concerned with testing on hydrodynamic flows in pipes and channels, but with some opportunities on heat and mass transfer.

Salary will be £2,580 per annum (minimum) on scale IA.

Applications giving qualifications and experience, and naming two referees, should be sent to Dr. R. S. Brodkey, P.O. Box 88, University of Manchester, Manchester M60 1QD. Quote reference LE/37/75.

Universities continued

EDINBURGH

HERIOT-WATT UNIVERSITY
DEPARTMENT OF MATHEMATICS

RESEARCH ASSOCIATESHIP

A postdoctoral research associateship is available for work on an SRC sponsored project concerning instabilities and bifurcations in nonlinear oscillations problems. The investigation is based on a qualitative study of the associated differential equations, and it is therefore preferable that applicants have some knowledge of the theory of partial differential equations. A knowledge of continuum mechanics is also desirable. The project will extend for one year at a salary in the range £2,778 to £3,662 plus membership of an appropriate superannuation scheme.

Further information and application forms, which may be returned by September 20th 1975, are available from the Secretary, Heriot-Watt University, Chambers Street, Edinburgh.

EDINBURGH
THE UNIVERSITY
DEPARTMENT OF EDUCATIONAL STUDIES

LECTURER IN COMMUNITY EDUCATION

Applications are invited for the above post from suitably qualified persons with particular regard and experience in the field of community education and of community development. The successful candidate will be under-taking teaching and supervising on the Department's undergraduate courses, and the development of external links with other bodies involved in community education. Graduates should have a good first degree or professional qualification and preferably some experience in community education would be an advantage.

Salary will be on the scale £2,778 to £5,650 per annum under review.

Applications (three copies) with the names and addresses of three referees should be sent to the Secretary to the University, University of Edinburgh, The College, South Bridge, Edinburgh EH8 9YL to arrive not later than 30th September, 1975. Please quote reference 1051.

JAMAICA

UNIVERSITY OF THE WEST INDIES

Applications are invited for the post of

TEMPORARY ASSISTANT LECTURER IN THE DEPARTMENT OF PHYSICS

Courses are taught in various branches of Physics and Applied Physics. Facilities for research exist in the following fields: solid state physics and biophysics, nuclear physics, radio astronomy, Mossbauer spectroscopy, holography of vision. The appointment will be expected to take up its duties as soon as possible. Applications will normally be considered up to about 1 July 1976. (2) a starting salary in the list of supplementation and a housing allowance of 20 per cent of salary will be paid.

Detailed applications (three copies) including curriculum vitae and naming three referees should be sent as soon as possible to the Registrar, University of the West Indies, Mona, Kingston 7, Jamaica. Further particulars of the post are available from the Association of Commonwealth Universities (Appointments Section), 36 Gordon Square, London, W.C.1.

Applications should be received by 31st October, 1975.

KENT

THE UNIVERSITY
CANTERBURY
FACULTY OF SOCIAL SCIENCES

LECTURER IN LAW

Applications are invited for the above post of LECTURER in Law with effect from October 1st or as soon as possible thereafter. It will be given to candidates with a good honours degree and preferably some teaching experience in the fields of contract, torts and property law.

Salary according to qualifications and experience, will be on the scale £2,778 to £5,650 per annum (under review).

Application forms (three copies) should be returned by Mr. R. Berry, Cornwallis Building, University of Kent, Canterbury, Kent, not later than 30th September 1975. Please quote reference A34/75.

LONDON

THE UNIVERSITY
GOLDSMITHS' COLLEGE
New Cross, London SE14 6NW

Temporary Lectureship in Education

APPOINTMENT for the 1976-76 session possibly renewable for one further year.

Applications are invited for the above appointment to begin in the University of London B.A. Honours Degree in Social Science and Qualification. The appointment to be made as soon as possible. The successful candidate will join in teaching and research in the Social Theory Area.

The appointment will be on the Lecturer Grade I scale £2,778 to £5,650 per annum plus London Allowance £525 per annum.

For further particulars write enclosing stamped addressed envelope to The Registrar, Goldsmiths' College, New Cross, London SE14 6NW to whom applications should be returned by 30th September, 1975.

LONDON

THE UNIVERSITY
GOLDSMITHS' COLLEGE
DEPARTMENT OF ADULT STUDIES

APPOINTMENT OF COURSE DIRECTOR (PRINCIPAL LECTURER) IN THE APPLIED SOCIAL STUDIES COURSE

Applications are invited for the post of Director of the Applied Social Studies Course to take effect from January, 1976, if possible.

This new-type professional social work course is for graduates in the social sciences. There are 40 students, three other full-time staff members and three part-time staff. An expansion in student numbers is currently being considered.

Candidates should be professionally qualified graduates with experience of social work. Experience in the field of training for work in the education field would be an advantage.

Informal inquiries can be made to the Director of the B.A.S.S., Mr. Peter Barnes, telephone No. 01-692 7171 ext. 7171 or to the present Course Director, Mrs. M. Rojahn, telephone No. 01-692 7171 ext. 7172. Opportunities to meet the staff can also be arranged.

Salary on scale £3,940, rising by seven annual increments to £5,098 under review, plus London allowance of £525.

Wife for further details regarding superannuation etc. please addressed envelope to the Registrar, University of Lancaster, Bailrigg, Lancaster LA1 4YW, quoting reference 76/75.

Closing date for receipt of applications is 30th September, 1975.

LEICESTER

THE UNIVERSITY

LECTURESHIP IN THE DEPARTMENT OF CLINICAL GENETICS

Applications are invited for the appointment of a LECTURER in the Department of HUMAN GENETICS tenable from 1st November, 1975. The Lecturer will be required to take a part in the teaching of human genetics in undergraduate and postgraduate courses and to participate in the laboratory which there are adequate facilities. He may would be attractive to candidates with interests in immunogenetics and especially in the clinical application and developmental aspects.

Salary will be at an appropriate point on the scale £2,778 to £5,650 (which is subject to revision and combinations according to age, qualifications and experience. Membership of the superannuation scheme will be required.

Further particulars may be obtained from the Registrar, The University, Newarkton Lane, Lyne NE1 7RU, with whom applications (four copies) together with the names and addresses of three referees, should be lodged not later than three weeks after the appearance of this advertisement. Please quote reference 1785.

LEICESTER

THE UNIVERSITY
DEPARTMENT OF ADULT EDUCATION

Applications are invited for the post of LECTURER in PSYCHOLOGY in this Department, to be responsible for developing courses in Psychology in the University's part-time, extra-mural and short-course activities.

Salary according to qualifications and experience on the scale £2,778 to £5,650 with superannuation benefits.

Further particulars and application form can be obtained from the Assistant Registrar, The University, Leicester LE1 7RH, to whom applications should be returned by 26th September, 1975, quoting reference A/PSYE.

MANCHESTER

THE UNIVERSITY
LECTURER IN HIGHER EDUCATION

Applications invited for this post in the Department of Adult Education, which is engaged in advanced teaching and research in higher education, including the development of teaching methods in higher education and their dissemination among academic staff throughout the University. The successful candidate will take a major part in this development and, besides the organisation of training courses for academic staff, will share in the teaching and supervision of students for advanced diplomas and higher degrees. Applicants should have good academic qualifications in education or one of the other social sciences, have substantial teaching experience at the tertiary level of education and should be familiar with recent developments in the sociology of teaching and learning situations at this level.

Salary range per annum £3,118 to £3,906 plus threshold payments (equivalent to £3,178 to £5,150 on new scale agreed for arbitration) and subject to further review. Superannuation.

Particulars and application forms returnable by 6 October 1975 from the Registrar, The University, Manchester M13 9PL. Quote ref. 168/75

NEW ZEALAND

UNIVERSITY OF OTAGO
Dunedin

LECTURER OR SENIOR LECTURER IN POLITICAL STUDIES

Applications are invited to fill the above-named position in the Department of Political Studies. Applicants should have a Master's degree, although this can be normally obtained by thesis work subsequent to the Bachelor's degree. They should be lecturing in some other area, preferably in a Commonwealth country. Salary will be according to the Australian lecturer level.

Salary: Lecturer, NZ$7,861 (US$9,113, £4,219); Senior Lecturer, NZ$9,817 (US$11,383, £5,268).

Further information is available from Colleen Hodgson, Registrar, University of Otago, Dunedin, New Zealand, to whom applications should be returned by 26th September, 1975, quoting reference 75/1.

NEWCASTLE UPON TYNE

THE UNIVERSITY
SCHOOL OF MARINE TECHNOLOGY

Suitably qualified candidates from any branch of engineering backgrounds are invited to apply for the post of RESEARCH OFFICER in OCEAN ENGINEERING tenable from a date to be arranged until 31st July, 1977. The majority of the work on which the successful applicant will be engaged will have a civil engineering bias and be related to hydrocarbon extraction from the North Sea. Interests in wave energy conversion and aquaculture could also be accommodated. A working knowledge of computing methods would be an advantage. Preference will be given to candidates with a higher degree.

The initial salary will be in accordance with qualifications and experience on the Range 1A scale, £2,778-£3,662, which is subject to revision and consideration. Membership of the appropriate university superannuation scheme is required.

Further particulars may be obtained from the Registrar, The University, Newcastle upon Tyne, NE1 7RU, to whom applications (two copies), together with the names and addresses of three referees, should be returned by 30th September, 1975. Please quote reference 1183.

NEWCASTLE UPON TYNE

THE UNIVERSITY
THE MEDICAL SCHOOL

LECTURER IN HUMAN GENETICS

Applications are invited for the appointment of a LECTURER in the Department of HUMAN GENETICS tenable from 1st November, 1975. The Lecturer will be required to take a part in the teaching of human genetics in undergraduate and postgraduate courses and to participate in the laboratory which there are adequate facilities. He may would be attractive to candidates with interests in immunogenetics and especially in the clinical application and developmental aspects.

Salary will be at an appropriate point on the scale £2,778 to £5,650 (which is subject to revision and combinations according to age, qualifications and experience. Membership of the superannuation scheme will be required.

Further particulars may be obtained from the Registrar, The University, Newcastle upon Tyne NE1 7RU, to whom applications (four copies), together with the names and addresses of three referees, should be lodged not later than three weeks after the appearance of this advertisement. Please quote reference 1785.

NOTTINGHAM

THE UNIVERSITY
MEDICAL SCHOOL
DEPARTMENT OF MEDICINE

Applications are invited from Science graduates with a good honours degree for the post of RESEARCH ASSISTANT or postdoctoral RESEARCH FELLOW in the M.R.C. supported group studying platelet behaviour, thrombosis and vascular disease. The appointment is for a period of research. Assistant Fyvl the person appointed will be able to register for a higher degree. The work will be carried out in the Department of Medicine, General Hospital, Nottingham (Medical School) and in association with the Department of Biochemistry (Professor J. N. Hawthorne).

Salary will be within the national range with effect from 1st October, 1975: £2,778 by £205 to £4,818 according to age, qualifications and experience.

Further details and an application form can be obtained from the Senior Assistant Registrar, Medical School Faculty Office, University Hospital and Medical School, Queen's Medical Centre, Nottingham NG7 2UH, to whom the form should be returned by the 30th September, 1975.

THE OPEN UNIVERSITY

TEMPORARY STAFF TUTOR IN EDUCATIONAL STUDIES

Applications are invited for a temporary post for one year as a STAFF TUTOR in EDUCATIONAL STUDIES for the East Midlands Region.

The main duties of the post will include liaison with members of the course academic staff and assisting the Regional Director in the appointment, training and supervision of part-time tutors.

The Staff Tutor will be appointed to the Faculty but will be organizationally responsible to the Regional Director and will be based at the regional centre in Nottingham.

Whilst a wide interest in education is the only essential prerequisite for this temporary post, a particular knowledge of and interest in the field of Curriculum Studies would be especially helpful.

Salary on the scale £2,118 to £3,906 per annum plus threshold payments and superannuation on the Universities Superannuation Scheme. Salary scales are under review.

Application forms and further particulars are available from the Personnel Manager (E&S), The Open University, P.O. Box 75, Walton Hall, Milton Keynes, MK7 6AA, telephone Milton Keynes 65988. Closing date: Friday, 19th September, 1975.

SHEFFIELD

THE UNIVERSITY
LECTURESHIP IN MICROBIOLOGY

Applications are invited for the above post tenable as soon as October 1st or as may be arranged by a lecturer will be expected to teach and research in the field of microbial ecology.

Salary: Salary is in range £2,778-£5,650, with superannuation provisions.

Particulars and forms of application from the Secretary, The University, Sheffield S10 2TN, to whom applications should be returned by 26th September, 1975. Quote ref. B 225/D1.

THE OPEN UNIVERSITY

FACULTY OF EDUCATIONAL STUDIES

TEMPORARY LECTURER

A temporary LECTURER is required for two years to work on the BA(Hons) URBAN EDUCATION course. Duties will include responsibility for the general administration and maintenance of the course, examinations, and the preparation for summer schools, which are held in a number of centres throughout the country.

Candidates should have good academic qualifications in any of the disciplines of education, experience and interest in the problems of urban education, and a flair for administration.

Salary on the scale £2,778 to £4,818 per annum plus threshold payments and superannuation on the Universities Superannuation Scheme. Salary scales are under review.

Application forms and further particulars are available from The Personnel Manager (E&S), The Open University, P.O. Box 75, Walton Hall, Milton Keynes, MK7 6AA, telephone Milton Keynes 65988. Closing date for receipt of applications is 30th September, 1975.

THE OPEN UNIVERSITY IN SCOTLAND

TEMPORARY STAFF TUTOR IN EDUCATIONAL STUDIES

Applications are invited for a temporary post for nine years as STAFF TUTOR in EDUCATIONAL STUDIES for the Open University in Scotland (address date: Friday, 19th September, 1975).

THE OPEN UNIVERSITY

FACULTY OF TECHNOLOGY
PROFESSOR OF DESIGN

Applications are invited for the post of Professor of Design in the Faculty of Technology. This post offers, within the structure of the Open University teaching system, scope for the development of original and potentially high-quality contributions to design education—particularly to mass-media design education.

Applicants should have experience and expertise in design, and a broad academic background. Preference will be given to candidates with a proven ability to teach post-specialist design, and preferably active research interests that relate design to the wider issues of technology, society and culture.

Salary in the normal professorial range, with superannuation on the Universities' Superannuation Scheme.

Further particulars are available from The Personnel Manager (E&S), The Open University, P.O. Box 75, Walton Hall, Milton Keynes, MK7 6AA, telephone Milton Keynes 65988. The closing date for applications is 31st October, 1975.

OXFORD

ST. HILDA'S COLLEGE
Oxford OX4 1DY

TUTORIAL FELLOWSHIP IN MODERN HISTORY

The College proposes, if a suitable candidate presents herself to elect a Tutorial Fellow in Modern History in succession to the emolument of the nineteenth and twentieth century fields, with a preferred date for the election the Fellowship, for which women only are eligible, may be associated with a University Lectureship. Candidates for which no separate applications are necessary.

Further particulars of the appointment may be obtained from the College Secretary to whom, if applications (three copies) are requested by a statement of the candidate's academic record and the names of three referees, should be sent by 15 September 1975. Shortlisted candidates will be interviewed in the later part of October and the appointment may be taken up at a date to be determined between January 1 and October 1 1976.

SOUTHAMPTON

THE UNIVERSITY
PROFESSOR OF ELECTRONICS

Applications are invited for appointment to a Chair of Electronics which became vacant on the resignation of Professor D. Sims as Vice-Chancellor of the University of Southampton.

Further particulars may be obtained from the Registrar, The University of Southampton SO9 5NH, to whom applications (15 copies from United Kingdom and one from others) should be returned before 30th October, 1975.

SOUTHAMPTON

THE UNIVERSITY
FACULTY OF MEDICINE
PROFESSOR OF COMMUNITY MEDICINE

Applications are invited from registered medical practitioners for appointment to the new Chair of Community Medicine.

Further particulars may be obtained from the Academic Registrar, The University of Southampton SO9 5NH, and applications (10 copies) from applicants in the United Kingdom and nine from others) should be submitted before 16 October 1975.

SHEFFIELD

THE UNIVERSITY
CHAIR OF ENGLISH LITERATURE

Applications are invited for a newly established second Chair of English Literature tenable from a date to be arranged as early as possible in the session 1975-76. A scholar with interest in the literature of the period between 1750 and the present day would be preferred.

Salary in the range approved for professorial appointments with superannuation provision.

Further particulars from the Registrar and Secretary, The University, Sheffield S10 2TN, to whom applications (one copy only) should be sent by 30th September, 1975. Quote reference 1-2561 DL.

SHEFFIELD

THE UNIVERSITY
CHAIR OF FRENCH

Applications are invited for the Chair of French which will become vacant on the retirement of Professor W. H. Lyon in September, 1976. The field of candidates is not restricted to any particular area of French studies.

Salary in the range approved for professorial appointments with superannuation provision.

Further particulars from the Registrar and Secretary, The University, Sheffield S10 2TN, to whom applications (one copy only) should be sent by 30th September, 1975. Quote reference 1-2561 DL.

SOUTH AFRICA

UNIVERSITY OF CAPE TOWN
PROVINCIAL ADMINISTRATION OF THE CAPE OF GOOD HOPE

LECTURESHIP IN CHEMISTRY

Applications are invited for the above post, vacant as from 1st January, 1976, in the Department of Physiology, in the Medical Biochemistry Department, according to qualifications and experience, will be made on the salary scale R7,740 by R360 to R9,060 to R9,420 by R360 to R10,140 per annum.

The principal responsibility of the lecturer will be to conduct practical classes in biochemistry for the degrees in B.Sc. in Physiotherapy, Occupational Therapy and Nursing. The course includes supervision of internists, and supervision of laboratory work. The successful candidate will also be required to undertake research in a field of his choice.

Applicants should submit a curriculum vitae, stating present salary, research interests and publications, when available if published and the names and addresses of three referees.

Memoranda concerning the position and further information should be obtained from the Registrar, University of Cape Town, Rondebosch, 7700, to whom applications must be submitted. Appointment will be subject to a satisfactory medical certificate.

The University reserves the right to appoint a person other than one of the applicants or to make no appointment.

Application forms and further particulars from the Chief Registrar, University of Cape Town, Private Bag, Rondebosch, 7700, to whom applications must be submitted. Appointment will be subject to a satisfactory medical certificate.

The University reserves the right to appoint a person other than one of the applicants or to make no appointment.

PAPUA NEW GUINEA

THE UNIVERSITY

Applications are invited for the post of GENERAL LECTURER in CLINICAL SCIENCES. Applicants should be suitably qualified medical practitioners. The appointee will be responsible for organising the teaching programmes for medical students in Clinical Sciences at Goroka Hospital. He will also share with the general hospital specialist clinical responsibilities at Goroka Hospital in the discipline and participate in teaching of trainee Health Extension Officers and Nurses. Clinicians in any discipline (e.g., Internal Medicine, Surgery, Child Health, Obstetrics and Gynaecology, Mental Health) may apply. Further information can be obtained from the Chairman, Clinical Science Department, A minimum allowance of $3,000 will be payable in the appointee.

Salaries: Senior Lecturer, K15,144-K19,608 per annum; Lecturer, K7,405-K19,608 per annum. (K1 sterling equals K1.541). In addition an allowance of K1,500 per annum if single is payable, an extra K1,000 overseas allowance and K165 expatriation allowance may also be payable.

Applications: in duplicate should include particulars of age, marital status, academic record, qualifications and experience. The names and addresses of three referees, a recent small photograph and the earliest date of possible starting date. Conditions include provision of housing, annual leave, fares, removal, superannuation. The academic positions carry an entitlement to study leave. In some cases it may be possible to make an appointment on secondment. Further details and the conditions of appointment from the Secretary, P.O. Box 4262, University Papua New Guinea. Applications close on 30th September, 1975.

SOUTH AFRICA

UNIVERSITY OF CAPE TOWN

SENIOR LECTURESHIP IN ECONOMICS

Applications are invited for a senior lectureship in Economics, in the Division of Economics of the School of Economics, to be taken up on 1st February, 1976, or as soon as possible thereafter.

Appointment according to qualifications and experience will be made on the salary scale R8,460 by R450 to R9,900 by R450 to R11,250 per annum.

Applicants with qualifications and interests in the history of economic thought, Development Economics, Public Finance, International trade and Africaeconomics will be given special consideration.

Closing date for receipt of applications is 15th October, 1975.

LECTURESHIP IN ORAL COMMUNICATION AND THE TEACHING OF ENGLISH

Applications are invited for the above post, in the Faculty of Education, from suitably qualified and experienced teachers who have had training and or experience in the teaching of Oral Communication.

The successful candidate will be required to take up duties from 1st January, 1976, or as soon as possible thereafter. Appointment according to qualifications and experience will be made on the salary scale R6,480 by R360 to R9,180 per annum.

The incumbent will be required to lecture in Method of English and to take Oral Communication lectures in the secondary and primary student teachers, and will also be required to supervise practice teaching in secondary and primary schools.

Closing date for receipt of applications is 30th September, 1975.

Applicants should state age, qualifications, relevant lecturing or teaching experience, publications and research interests. When available if appointed, present salary, also should give names and addresses of three referees.

Further information should be obtained from the Registrar, University of Cape Town, Private Bag, Rondebosch, 7700, to whom applications must be submitted. Appointment will be subject to a satisfactory medical certificate.

The University reserves the right to appoint a person other than one of the applicants or to make no appointment.

Application forms and further particulars from the Chief Registrar, University of Cape Town, Private Bag, Rondebosch, 7700, to whom applications must be submitted by 30th September, 1975.

SOUTH AFRICA

THE UNIVERSITY
NATAL

DEPARTMENT OF HISTORICAL AND POLITICAL STUDIES
(Pietermaritzburg)

Applications are invited for the above post, vacant as from 1st January, 1976, in the Department of Physiology, in the Medical Biochemistry Department, according to qualifications and experience, will be made on the salary scale R7,740 by R360 to R9,060 to R9,420 by R360 to R10,140 per annum.

The principal responsibility of the lecturer will be to conduct practical classes in biochemistry for the degrees in B.Sc. in Physiotherapy, Occupational Therapy and Nursing. The course includes supervision of internists, and supervision of laboratory work. The successful candidate will also be required to undertake research in a field of his choice.

Applicants should submit a curriculum vitae, stating present salary, research interests and publications, when available if published and the names and addresses of three referees.

Memoranda concerning the position and further information should be obtained from the Registrar, University of Cape Town, Private Bag, Rondebosch, 7700, to whom applications must be submitted by 30th September, 1975.

Appointment will be subject to a satisfactory medical examination. The University reserves the right to appoint a person other than one of the applicants or to make no appointment.

SOUTH AFRICA

THE UNIVERSITY
NATAL

DEPARTMENT OF HISTORICAL AND POLITICAL STUDIES
(Pietermaritzburg)

Applications are invited for the above post, vacant as from 1st January, 1976, in the Department of Physiology, in the Medical Biochemistry Department, according to qualifications and experience, will be made on the salary scale R7,740 by R360 to R9,060 to R9,420 by R360 to R10,140 per annum.

The principal responsibility of the lecturer will be to conduct practical classes in biochemistry for the degrees in B.Sc. in Physiotherapy, Occupational Therapy and Nursing. The course includes supervision of internists, and supervision of laboratory work. The successful candidate will also be required to undertake research in a field of his choice.

Applicants should submit a curriculum vitae, stating present salary, research interests and publications, when available if published and the names and addresses of three referees.

Memoranda concerning the position and further information should be obtained from the Registrar, University of Cape Town, Private Bag, Rondebosch, 7700, to whom applications must be submitted by 30th September, 1975.

Appointment will be subject to a satisfactory medical examination. The University reserves the right to appoint a person other than one of the applicants or to make no appointment.

WARWICK

THE UNIVERSITY
LECTURESHIP IN LAW

Applications are invited for the above post in the SCHOOL OF LAW, tenable from 1st January, 1976. Applicants with interests in any area of law will be considered, but preference will be given to the claims of the lecturer who can contribute to the teaching of Company Law.

Salary within the new points of the Lecturer scale £2,778 to £5,650 per annum under review.

Application forms and further particulars from the Personnel Officer, University of Warwick, Coventry CV4 7AL, quoting Ref. No. 473/75. Closing date for receipt of applications is 26th September, 1975.

WEST INDIES

THE UNIVERSITY
Jamaica

Applications are invited for the post of LECTURER in ENGLISH LANGUAGE EDUCATION in the School of Education. Applicants are expected to have a good honours degree and professional qualifications in the teaching of English at a primary or secondary level, and some experience of Caribbean education. Qualifications or experience in Linguistics, Psychology or Sociology would be an advantage. Preference will be given to candidates who can contribute to the teaching of Linguistics in the Education programmes. Candidates will be expected to participate in extra-mural duties as well as to undertake duties on campus.

Salary scale: Lecturer I, US$9,113 (£4,219) by US$1,270 (£588) to US$11,383 (£5,268) per annum. Lecturer II, US$11,383 (£5,268) by US$1,270 (£588) to US$12,653 (£5,856) per annum. Lecturer III, US$12,653 (£5,856) by US$1,270 (£588) to US$13,923 (£6,444) per annum. Salaries are tax free. Gratuity at 20% of salary at the end of each year of service. Unfurnished quarters are available on a limited number of occasions at a rental of 10 per cent of salary. Where the University does not provide the staff member concerned with accommodation, a housing allowance of US$2,000 (£926) per annum is payable. Provision is made for passages.

Detailed applications (three copies) including curriculum vitae and naming three referees should be sent as soon as possible to the Registrar, University of the West Indies, Mona, Kingston 7, Jamaica. Further particulars of the post are available from the Association of Commonwealth Universities (Appointments Section), 36 Gordon Square, London, W.C.1.

Applications should be received by 31st October, 1975.

BIRMINGHAM

CITY OF BIRMINGHAM POLYTECHNIC

DEPARTMENT OF ENGLISH AND FOREIGN LANGUAGES

PRINCIPAL LECTURER IN FRENCH

The successful candidate will be Subject Leader responsible to the Senior Lecturer and will play a full part in the development of the Polytechnic in co-operation with colleagues.

Salary scale: Principal Lecturer: £6,930 to £6,642 (bar) to £7,578.

Further details and application forms (please quote Ref. 81/75) obtainable from the Personnel Officer, City of Birmingham Polytechnic, Perry Barr, Birmingham B42 2SU. Closing date for receipt of applications 19th September, 1975.

BRIGHTON

THE POLYTECHNIC

LECTURER I or II in ECONOMICS required to work in CNAA Business Studies Degree and Diploma courses, interest in macro-economics desirable. Applicants should be professionally qualified and possess good academic qualifications.

Lecturer II £4,869 to £5,457, Lecturer I £3,669 to £4,347, with the possibility of transfer eventually to Senior Lecturer scale rising to £6,117.

Initial appointments may be in either scale, depending on qualifications and experience of successful applicants.

Further particulars and application forms (please quote Ref. 81/75) obtainable from the Secretary.

BRIGHTON POLYTECHNIC
Moulsecoomb, Brighton
Tel. 0273 693504

Polytechnics

Ulster College Northern Ireland Polytechnic

FACULTY OF THE ARTS

LECTURER II/ SENIOR LECTURER—FINE ART (2 posts)

Applicants should be practising Artists and for one of the posts a special interest in sculpture would be an advantage.

LECTURER II/ SENIOR LECTURER—PRINTED TEXTILES

Applicants should be creative designers who can make a distinct contribution to the teaching of this subject to BA (Honours) level.

LECTURER I or II—PHILOSOPHY

With a special interest in Social and Political Philosophy, to teach to honours degree level. Candidates should have a good honours degree together with relevant post-graduate research and/or teaching experience. The successful candidate will take up the post on 1 January 1976 or earlier if possible.

LECTURER II/ SENIOR LECTURER—ENGLISH LANGUAGE/ LITERATURE

To teach English Literature and Creative Writing in the BA (Humanities) and other courses; and to develop courses in Rhetoric/ Creative Writing.

FACULTY OF BUSINESS ADMINISTRATION

Owing to the continued expansion of courses in this faculty the following additional lecturers are required.

LECTURER II—BUSINESS FINANCE

The person appointed will be expected to play a leading role in planning and teaching the Accounting and Finance Honours specialisation of the sandwich and part-time Degree Courses in Business Studies. Applicants should have an appropriate Degree or professional qualification. Teaching and business experience is highly desirable. A post-graduate qualification in Business Administration would be an advantage.

LECTURER II—FINANCIAL ACCOUNTING

LECTURER II—MANAGEMENT ACCOUNTING

Applicants should have an honours degree and/or be a qualified accountant ACA/ACCA/ ACMA with professional or industrial experience and an enthusiasm for teaching.

LECTURER I or LECTURER II—ECONOMICS

Applicants should have an Honours Degree in Economics or Business Studies and offer international Economics and trade and preferably econometrics, as special subjects. Research, industrial experience and post-graduate qualifications are also desirable.

LECTURER I or LECTURER II—APPLIED ECONOMICS

With emphasis on managerial economics to teach at degree and diploma level.

SALARY SCALES:

Senior Lecturer £5,031-£5,955/£6,417
Lecturer Grade II £3,279-£5,493 (£5,955/£6,417)
Lecturer Grade I £2,469-£4,377

The Polytechnic occupies a semi-rural position on a 114 acre campus overlooking the sea at Jordanstown, a pleasant and quiet residential area. There is a scheme of assistance with removal expenses.

Further particulars and application forms which must be returned by September 22 may be obtained by telephoning Whiteabbey 85131 ext. 2243 or by writing to:

The Establishment Officer, Ulster College, The Northern Ireland Polytechnic, Newtownabbey, Co. Antrim, BT37 0QB.

Leeds POLYTECHNIC

Department of Building and Civil Engineering	SENIOR LECTURER/ LECTURER II IN CONSTRUCTION TECHNOLOGY SENIOR LECTURER/ LECTURER II IN CIVIL ENGINEERING
Department of International Studies	SENIOR LECTURER IN GERMAN
Library	ASSISTANT TUTOR-LIBRARIAN (Art and Design)(Lecturer I) NJC Conditions of Service
Department of Life Sciences	SENIOR LECTURER/ LECTURER II IN PHARMACOLOGY Applicants should be well qualified in Pharmacology and Physiology
Department of Management and Business Studies	LECTURER II IN BEHAVIOURAL STUDIES

Salary Scales:
Senior Lecturer: £5031-£5965 (bar) - £6417
Lecturer II: £3278-£5493
Lecturer I: £2469-£4377
Commencing salary according to qualifications and experience.

Details from:
The Academic Officer, (MA.13) Leeds Polytechnic, Calverley Street, Leeds LS1 3HE 0532 41101

Closing Date: 19th September 1975

GLAMORGAN POLYTECHNIC
POLITECHNIG MORGANNWG

(Incorporating Glamorgan College of Education, Barry)

DEPARTMENT OF ESTATE MANAGEMENT and QUANTITY SURVEYING

Lecturer II/Senior Lecturer—Estate Management/Valuations

Candidates must be corporate members of R.I.C.S. Preference will be given to applicants with additional academic qualifications.

Senior Lecturer—Town and Country Planning

Candidates must be corporate members of R.T.P.I.

DEPARTMENT OF BUSINESS STUDIES

Lecturer II—Economics

Consideration will be given to candidates interested in a permanent post, or in a temporary appointment for one year.

Lecturer II—Business Organisation

DEPARTMENT OF ARTS & LANGUAGES

Principal Lecturer—French

Salaries: Lecturer, Grade II, £3,279-£5,493
Senior Lecturer £5,031-£6,417
Principal Lecturer £5,940-£7,578

Closing date for applications: September 19th, 1975. For application form and further details, please send large stamped addressed envelope to:

The Personnel Officer, Glamorgan Polytechnic, Llantwit Road, Treforest, Pontypridd, Mid Glam.

LANCHESTER POLYTECHNIC

Coventry - Rugby

Faculty of Art and Design

Principal Lecturer in GRAPHIC DESIGN

Faculty of Social Science

Senior Lecturer in COMMERCIAL LAW

Lecturer Grade II in MARKETING

Lecturer Grade II in SOCIAL ADMINISTRATION

Salaries:
Principal Lecturer: £6,940-£6,642-£7,578 per annum
Senior Lecturer: £5,031-£5,955-£6,417 per annum
Lecturer Grade II: £3,279-£5,493 per annum

In certain circumstances the commencing salary for the above posts may be above the minimum of the scale.

For further particulars and application forms, please apply in writing enclosing a foolscap stamped and addressed envelope to Assistant Secretary (Personnel), Lanchester Polytechnic, Priory Street, Coventry CV1 5FB, returnable within ten days of the appearance of this advertisement.

CITY OF LONDON POLYTECHNIC

Following a review of our examinations procedures we wish to appoint an

Examinations Officer

Salary in the range £4,496 to £5,492

Applications are invited from candidates with administrative experience and management ability. The post involves close liaison with senior academic and administrative colleagues and the conduct of examinations throughout the Polytechnic.

Details and application forms from:

Assistant Secretary,
City of London Polytechnic,
117-119 Houndsditch,
London EC3A 7BU.
Telephone: 01-283 1030 ext. 252

dundee college of technology

HEAD OF DEPARTMENT of Accountancy & Economics

Resulting from the recent creation of an additional department, applications are invited for this newly established post. The college is a Scottish Central institution with a substantial and developing commitment in respect of courses at degree and diploma level. Initially, the department of Accountancy and Economics will be directly responsible for an existing Scottish H.N.D. course in Accounting and Finance and for substantial contributions to several degree and diploma courses offered by other departments. The immediate objective of the department will be to introduce a degree course in Accounting and opportunities also exist to develop undergraduate courses in Economics and Law.

Applicants must have high academic qualifications in an appropriate discipline (e.g. Accounting, Economics or Law), experience in teaching at degree level and relevant practical and/or research experience, together with a proven record of administrative ability.

Salary £8,013 per annum; financial assistance towards the cost of removal expenses may be payable.

Further particulars and application form obtainable from the Principal, Dundee College of Technology, Bell Street, Dundee, DD1 1HG, to whom completed application forms should be returned not later than 19 September, 1975.

COUNTY OF SOUTH GLAMORGAN

CARDIFF COLLEGE OF ART

School of Art Education

Applications are invited from suitably qualified and experienced candidates for the post of

PRINCIPAL LECTURER IN ART EDUCATION

Co-ordinator of Studies and Senior Tutor for the Art Teacher's Certificate Course. To commence duties on 1st January, 1976.

Salary scale: Principal Lecturer £5,940 to £6,642 to £7,578.

Application forms and further particulars available from: The Registrar (Ref.: S—THES), Cardiff College of Art, Howard Gardens, Cardiff, CF2 1SP, Cardiff 22202. Closing date: Friday, 19th September, 1975.

Polytechnics continued

Thames Polytechnic
School of Surveying
Division of Building Economics and Costs

Senior Lecturer

Applications are invited from qualified members of the quantity surveying profession for a post in the Division of Building Economics and Costs, Faculty of Architecture and Surveying, Vancouit House, King Street, Hammersmith, London W6 9LU. The Division is responsible for teaching on full-time BSc degree courses in Quantity Surveying and Building Surveying, part-time courses for the RICS and IOS examinations and Diploma courses in Architecture and Landscape Architecture.
The person appointed will join a team of quantity surveyors involved in teaching, teaching methods and research. Consultancy work will be highly relevant. Teaching experience is preferable but applications from experienced practitioners who are involved with current developments in the education of the construction cost consultant and other members of the design team will be considered.
Salary scale: £5,031-£5,955 (bar) —£5,417 plus £351 London weighting allowance.
Further particulars and form of application may be obtained from the Secretary, Thames Polytechnic, Wellington Street, London SE18 6PF, to whom completed applications should be returned by 23 September, 1975.

Thames Polytechnic
School of Surveying
Division of Construction Technology and Building Management

Temporary Lecturer

Applications are invited from suitably qualified Surveyors, Architects, Builders or Civil Engineers to teach Construction Technology and Management in the School of Surveying : an interest in Construction Economics would also be relevant. The post is temporary for the session 1975-76.
The School offers three BSc degree courses in Estate Management, Building Surveying and Quantity Surveying. The courses are granted the fullest recognition by the Royal Institution of Chartered Surveyors. Additionally part-time courses up to final examination level are provided for RICS and IOS examinations.
Salary scale : Lecturer Grade II : £3,378-£3,483 plus £351 London allowance.
Further particulars and forms of application may be obtained from the Secretary, Thames Polytechnic, Wellington Street, London SE18 6PF, to whom completed applications should be returned by 23 September, 1975.

UNIVERSITY OF CALABRIA

Applications are invited for the post of lector of English for the academic year 1975-76. Candidates should forward applications by express mail with detailed curriculum, 3 photocopies of degrees/diplomas, an essay of 1,000-2,000 words on "The Teaching of English to University Students" which should include a discussion of the role of the language laboratory, references and any publications to :

Il Magnifico Rettore,
Universita degli Studi della Calabria,
Ufficio Affari Generali,
Palazzo Fausano,
Contrada Camaniola,
87030 RENDE (CS), Italy

to arrive by 30th September 1975. Salary circa Lit.280.000 per month.

MANCHESTER
THE POLYTECHNIC
FACULTY OF HUMANITIES

Applications are invited from suitably qualified persons for the post of Lecturer II in Art History.
The person appointed will teach to degree level in a variety of courses within the Department of General Studies.
For further details and application form (returnable by 30th September, 1975) please send a self-addressed envelope marked "CS/1743" to the Secretary, Manchester Polytechnic, Lower Ormond Street, Manchester, M15 6BX.

LEICESTER
THE POLYTECHNIC
ADMINISTRATIVE ASSISTANT (EXAMINATIONS)
Academic Section of Central Administration

Salary £2,932-£3,282 p.a.

Duties comprise a range of administrative functions, primarily concerned with Degree and Diploma examination procedures, the servicing of appropriate academic committees and with various aspects of research activities within the polytechnic. Applicants should hold an Honours degree of a British institution. Relevant experience essential : experience of committee servicing an advantage.
Further details and application form obtainable from Miss Shilling, Miss Taylor, Polytechnic, P.O. Box 143, Leicester, LE1 9BH. Closing date 17th September. Re-advertisement : previous applicants will be reconsidered and should not re-apply.

LIVERPOOL
LIVERPOOL POLYTECHNIC
DEPARTMENT OF MARITIME STUDIES

RESEARCH ASSISTANT

A vacancy exists in the above Department for a GRADUATE with suitable mathematics or technical qualifications to work with a group involved in investigating the behaviour of ships mooring in port.
Salary: £2,127 to £2,529.
Application forms and particulars available from Staff Office, Liverpool Polytechnic, Hartwell House, 1 Hartford Place, Liverpool L3 9NH. Telephone 051-207 3581. Please quote Ref. TP 1503.

LONDON, S.E.18
THAMES POLYTECHNIC
SCHOOL OF SURVEYING
SENIOR LECTURER

Applications are invited from graduate Surveyors, Architects, Construction/Development Project Managers, or Civil Engineers with professional experience to teach in the Division of Construction Technology and Building Management.
The School offers degree courses in Estate Management, Building Surveying and Quantity Surveying. These carry full initial recognition by the RICS. Additionally part-time courses up to final level are provided for RICS and IOS examinations.
Facilities for research and consultancy are available.
Salary scale: £6,051 to £6,705 (bar to £8,427 plus £351 London allowance.
Further particulars and forms of application may be obtained from the Secretary, Thames Polytechnic, Wellington Street, London, SE18 6PF to whom completed applications should be returned by 23 September, 1975.

MANCHESTER
THE POLYTECHNIC
DEPARTMENT OF SOCIAL SCIENCE
RESEARCH ASSISTANT in SOCIOLOGY

Applications are invited for the post of 'Research Assistant' in the Section of Sociology within the Department of Social Science. Candidates should be graduates in Sociology or an allied discipline.
The successful candidate will assist in ongoing research in a diversity of topics, so familiarity across the range of research techniques is advantageous.
A limited amount of sociology teaching will be expected.
The person appointed will be encouraged to register for a higher degree of the C.N.A.A. or further particulars and application form (returnable by 30th September, 1975), please send a self-addressed envelope marked "CS/1742" to the Secretary, Manchester Polytechnic, Lower Ormond Street, Manchester, M15 6BX.

THE POLYTECHNIC OF NORTH LONDON
DEPARTMENT OF FOOD SCIENCE
LECTURER II
Required for Oct 1, 1975

Applications are invited from graduates in suitable disciplines to teach subjects relating to nutriment, maintenance and services with the food industry, to diploma and higher National Diploma students and to the Honours Degree Course in the Department of Food Sciences. Applicants should have teaching and research interests in Microbiology and Biochemistry. Salary £4,194 to £5,370, plus £351 London allowance.
Application for, and further particulars (quoting Ref. No. 29/75) from Establishment Officer, The Polytechnic of North London, Holloway Road, N7 8DB.
Applications must be returned within 14 days of the appearance of this advertisement.

SHEFFIELD
SHEFFIELD POLYTECHNIC
HEAD OF DEPARTMENT OF ECONOMIC AND BUSINESS STUDIES

The Department has CNAA Bachelor of Business Studies (Honours) and full time and part time Diploma courses in Business Studies. A programme of development is envisaged including Masters courses. The Department contributes to courses throughout the Polytechnic.
Applicants must be clearly capable of leading a team of lecturers of this large and important department and of exercising a new academic initiative.
Salary Scale: Grade VI: £6,057-£6,915.
Application forms and further details obtainable from the Personnel Officer, Sheffield Polytechnic, Hallamire House, Shoreham Street, Sheffield, S1 1WB, to whom completed forms should be returned within fourteen days.

SHEFFIELD
SHEFFIELD POLYTECHNIC
HEAD OF DEPARTMENT OF COMPUTER STUDIES

This is a new Department to be established from 1 September, 1976 as a result of the restructuring of the existing Department of Mathematics and Computing Science.
The Head will be required to give leadership, express a direction to the discrete but related subject areas of Information Systems and Computer Science to be combined within this Department, which will assume responsibility for running the CNAA BSc and BSc Honours degree in Computing Science, Higher National Diploma and Certificate courses in Computer Studies and undertaking and developing a Steward constituted a wide range of established and projected courses across the Polytechnic, particularly in the areas of Business and Management Studies and Engineering. The Department will also sustain the provision of a programme of short courses.
Salary Scale: Grade VI: £6,057-£6,915.
Application forms and further details obtainable from the Personnel Officer, Sheffield Polytechnic, Hallamire House, Shoreham Street, Sheffield, S1 1WB, to whom completed forms should be returned within fourteen days.

KINGSTON POLYTECHNIC
GIPSY HILL

LECTURER in EDUCATION

Applicants should have a special interest in one or more of the following areas :—

Middle School
Health Education
Educational Psychology

Salary :
£3,279-£5,493 p.a.
plus London Allowance.
Further details and application forms are obtainable from the Assistant Director, Kenry House, Kingston Hill, Kingston upon Thames, Surrey KT2 7LB. Tel. 01-549 1141.

Overseas

THE NEW SOUTH WALES INSTITUTE OF TECHNOLOGY
SYDNEY, AUSTRALIA

HEAD OF THE SCHOOL OF FINANCE AND ECONOMICS

Faculty of Business Studies

$A23,569 p.a.

The New South Wales Institute of Technology provides at its central city campus, a wide range of professional courses for those entering or already employed in Business, Government and Technological fields. A new multi-storey Business Studies Building will commence construction in the very near future to house the Faculty activities.
The appointee to this Chair will be responsible for the academic leadership of the staff, and day to day operation of the teaching and research work. As the Head of the School he will be, ex-officio, a member of the Academic Board and the Faculty Board and may be called upon, in the future, to assume the duties of Dean of the Faculty.
The School will soon be offering a Post-Graduate Diploma in Finance and offers Finance and Economic subjects to all students taking the Bachelor of Business Degree. It will further be offering Finance and Economic subjects to other Post-Graduate courses that are being developed in the Faculty of Business Studies.
The appointee should possess qualifications at the Post-Graduate level in Business Studies with emphasis in the field of Finance and should have personal experience at an appropriate level in higher education in the Business Studies field. This experience will have been obtained by lecturing and/or administering in a Faculty of Business Studies at a recognised University or College of Advanced Education.
It is desirable that the Head of the School will have had business experience, acquired in a responsible position in a company of some significance. Alternatively he may have acted as a consultant to business or to government.
The Council of The Institute encourages academic staff to undertake limited professional consulting for industry and commerce. Opportunities for research work are available.
The position of the Head of the School carries tenure and provides for Superannuation and Long Service Leave. A Housing Loan Scheme is also available. Fares and a contribution toward removal and initial accommodation expenses are provided for overseas appointees.
Applications close on 16th October, 1975. Applicants should arrange for three confidential referees' reports to arrive by the same date. Further information may be obtained from and applications and referees' reports are to be sent to :

The Agent-General for New South Wales,
New South Wales Government Offices,
66 Strand,
LONDON, WC2N 5LZ,
ENGLAND, U.K.

RMIT ADVANCED COLLEGE

AUSTRALIA

SCHOOL OF HUMANITIES AND SOCIAL SCIENCE

Position :

PRINCIPAL LECTURER/ SENIOR LECTURER

Applications are invited for the above positions at either level. The appointee will have post graduate qualifications in Psychology, a variety of experience in education, commerce or industry and have interests in two of the following fields : assessment, counselling, application of social psychology to education or industry, or conducting training programmes.
Previous administrative experience is essential. Duties include responsibility for the teaching of Psychology to Diploma, Degree or Graduate Diploma students and organization of staff and students. The appointee would be expected to take up duties early in 1976.
Salary : Principal Lecturer, $A16,971.00 per annum. Senior Lecturer within the range $A15,954.00 to $A16,644.00 per annum, according to qualifications and experience.
Reference No. 141/76/AS.
Applications Close : 8th October, 1975.
Intending applicants should obtain a schedule of duties from the Personnel Branch, Box 2476V, G.P.O. Melbourne, Victoria 3001, Australia.

ROYAL MELBOURNE INSTITUTE OF TECHNOLOGY

General Vacancies

Opportunities for

Social Scientists

S.S.R.C. French Programme 1976/77

The Social Science Research Council French Programme enables British Social Scientists to maintain and develop contact with their French opposite numbers. It aims at encouraging exchanges which are likely to lead to collaborative research; and involves links with the Centre National de la Recherché Scientifique (CNRS), the Ecole Pratique des Hautes Etudes (EPHE) and the Maison des Sciences de l'Homme.
Applications from Social Scientists with a working knowledge of French are invited for the 1976/77 academic year. The programme is intended to be flexible with regard to both timing and modes, and applicants interested in novel forms of co-operation, or an earlier or later start, should contact us.
For further details of the Programme and application forms, write to Mrs. C. M Cunningham, S.S.R.C., 1 Temple Avenue, London EC4Y 0BD, quoting reference no. I/THES/875.
Closing date : 1 November, 1975.

Social Science Research Council **SSRC**

DORSET EDUCATION AUTHORITY
Institution of Higher Education

Appointment of

DIRECTOR

Applications are invited from graduates with substantial experience in the fields of higher and/or further education and who hold or have held posts carrying senior management responsibilities with a college. The salary range is likely to be that appropriate to a Group 9 College.
This new institution will be formed from an amalgamation of the advanced work of the Bournemouth College of Technology with the Weymouth College of Education. The Authority are looking for a person of proven ability, with energy and vision, capable of developing sound and imaginative long term plans but also conscious of the immediate constraints of the present economic situation.
Application forms and further particulars may be obtained from R. D. PRICE, B.A., County Education Officer, County Hall, Dorchester, Dorset DT1 1XJ. Closing date for the receipt of applications will be 29th September.

GREATER LONDON ARTS ASSOCIATION
Appointment of

DIRECTOR

Salary negotiable but not less than £7,500.
Further particulars may be obtained from The Correspondent, Greater London Arts Association, 25/31 Tavistock Place, London WC1H 9SF.

Administration

ASSOCIATION OF TEACHERS IN TECHNICAL INSTITUTIONS

HIGHER EDUCATION OFFICER

Applications are invited for the above post. The Higher Education Officer will be responsible for all aspects of Higher Education (including Teacher Training). Experience in Higher Education in the public sector is desirable.
Salary within the range of Heads of Department III/IV (£6,231 to £7,632) plus Inner London Allowance.
Applications should be received by Friday September 26th.
Details may be obtained from the General Secretary, ATTI, Hamilton House, Mabledon Place, London WC1H 9BH. Tel. 01-387 6806.

Colleges of Further Education continued

COLLEGE OF FURTHER EDUCATION, HULL

Appointment of Principal

Applications are invited for the post of Principal of this college of further education, which will be designated in September, 1976, simultaneously with a new institution of higher education at Kingston upon Hull. The two new colleges will result from the amalgamation of Hull Regional College of Art, Hull College of Commerce, Kingston upon Hull College of Education, Hull Nautical College, Hull College of Technology, together with the voluntary Endsleigh College of Education. An appropriate division of responsibility for advanced and non-advanced courses is planned. It is likely that the salary will be at a point within the range for a Group 8 college, i.e. £10,044-£10,554.
The County Council is seeking a Principal to establish this college of further education alongside the parallel development of the institution of higher education and based on the various existing resources. The successful candidate is expected to take up the appointment at an early date in advance of designation of the college of further education.
Further particulars may be obtained from the Director of Education, County Hall, Beverley, HU17 9BA, quoting reference HQ/FE. Completed applications should be returned by 15 September 1975.

Humberside County Council

INSTITUTION OF HIGHER EDUCATION—HULL

Appointment of Director

Applications are invited for the post of Director of this new institution of higher education, which will be designated in September, 1976, following an amalgamation of Hull Regional College of Art, Hull College of Commerce, Kingston upon Hull College of Education, Hull Nautical College and Hull College of Technology, together with the voluntary Endsleigh College of Education. It is likely that the salary will be at a point within the range for a Group 10 college, i.e. £12,180-£12,690.
The County Council is seeking a Director with qualifications, experience and those other qualities appropriate to the task of leading the development of this new institution. The successful candidate is expected to take up the appointment as soon as possible so that he or she may participate fully in the advance planning prior to designation.
Further particulars may be obtained from the Director of Education, County Hall, Beverley HU17 9BA, quoting reference HQ/FE. Completed applications should be returned by 15th September, 1975.

Humberside County Council

Fellowships and Studentships

Bulmershe College of Higher Education
(formerly Berkshire College)

SENIOR RESEARCH FELLOW

Applications are invited for the post of Senior Research Fellow to take research responsibility for a major project funded by the Department of Education and Science into a study of

'student choice in the context of institutional change'.

The grant provides for the appointment of the Senior Research Fellow, a Research Assistant and full secretarial support.
The project gives wide scope for an original approach to investigation and evaluation and will also involve comparison between different institutions of higher education. The project is intended to cover a period of approximately three years.
The salary of the Senior Research Fellow will be in the range of a Senior Lecturer, i.e. £5,031-£8,417.
Further particulars from, and applications to, The Academic Registrar (R1), Bulmershe College of Higher Education, Earley, Reading, Berks. RG6 1HY.

Holidays and Accommodation

GIVE-AWAY AIR FARES to Athens, Corfu, Crete, Malta, Dubrovnik, Rome, Milan, Naples, Istanbul, Germany, Tehran, India, Nairobi, Sydney, Hongkong, Jet Agency 01-637 2616, 5th Floor, 193 Oxford Street, London, W.1.

REMINDER
Advertisements should reach The Times Higher Education Supplement by the Friday prior to publication for classified display advertisements and by 10.30 a.m. (latest) on Monday prior to publication for lines and semi display.

Polytechnics continued

dundee college of technology

senior lectureship in
CIVIL ENGINEERING
Applicants should possess a good honours or higher degree in Civil Engineering; they should be specialists in Soil Mechanics and Foundation Engineering and have substantial teaching experience at degree level, together with a research and/or practical professional background. The person appointed will be Subject Leader in Geotechnics for the degree course in civil engineering.

senior lectureship in
ACCOUNTING
Applicants should have a good honours degree in a relevant discipline, experience in teaching at degree level, and relevant practical and/or research experience. The person appointed will be expected to make a substantial contribution to the development of a new degree course in accounting.

lectureship in
ACCOUNTING
Applicants should have a good honours degree (or equivalent qualification) and appropriate teaching, research or practical experience. The post involves teaching mainly at undergraduate level, with opportunity to take part in post graduate and post experience courses. Preference will be given to candidates with interest and experience in Financial or Management Accounting or in the development of Management Information Systems using computer techniques. The person appointed will be required to contribute to the development of a new degree in accounting.

lectureships (2) in
BUSINESS STUDIES
Applicants should have a good honours degree and appropriate practical, teaching or research experience. They should be able to offer one or more of the following disciplines: Marketing or Distribution, Organisation Theory/Practice, Human Resource Management, Corporate Strategy and Planning.

lectureship in
PRODUCTION MANAGEMENT
Applicants should have a good honours degree (or equivalent qualification) and appropriate teaching, research or practical experience. The post involves teaching mainly at undergraduate level, with opportunity to take part in post graduate and post experience courses. It offers scope for the development of new courses in Production Management.

lectureship in
MATHEMATICS and COMPUTER STUDIES
Applicants should possess a good honours degree in Mathematics and/or a recognised qualification in Computer Science. A particular interest in statistics or operational research would be welcomed and preference will be given to candidates with teaching experience in any branch of Computer Science at degree level.

lectureship in
MICROBIOLOGY or MAMMALIAN PHYSIOLOGY
Applicants must have a good honours degree and preferably a higher degree and/or relevant industrial experience. For the Lectureship in Microbiology industrial experience in applied microbiology or bacteriology would be welcomed; for the Lectureship in Mammalian Physiology a particular interest in human physiology would be an advantage.

Salary Scales: Senior Lectureship £6,000—£6,735 (bar)—£7,716. Lectureship £3,216—£6,012 (bar)—£6,495, with initial placing dependent upon approved prior experience. Financial assistance towards the cost of removal expenses may be payable.
Further particulars and application forms obtainable from the Principal, Dundee College of Technology, Bell Street, Dundee, DD1 1HG to whom completed application forms should be returned not later than 19 September 1975.

THE TIMES HIGHER EDUCATION SUPPLEMENT

make sure of your weekly copy by placing an order with your newsagent

If you like what you read in

The THES— quickly finds you the right staff

When you seek the right person to fill a vacant post, these columns are your fastest route for finding him or her.
Investigation has shown that among academics thinking about moving jobs, the THES is considered to be the 'most useful' publication. Remember also that 66% of THES readers 'always' or 'frequently' look at the appointments pages.
For further information, contact our Advertisement Dept. on 837 1234.

The Times Higher Education Supplement